ENGINEERING NEWS-RECORD

★
★

A McGRAW-HILL PUBLICATION

325-ton G-E powered gantry Star Iron and Steel crane at the Davis Dam site on the Colorado River. The crane must operate almost continuously during installation of five turbine generators.

Jogging a 325-ton load 1/10,000 inch at a time

... Electrically

G-E powered DAVIS DAM CRANE positions heaviest loads accurately, smoothly, safely

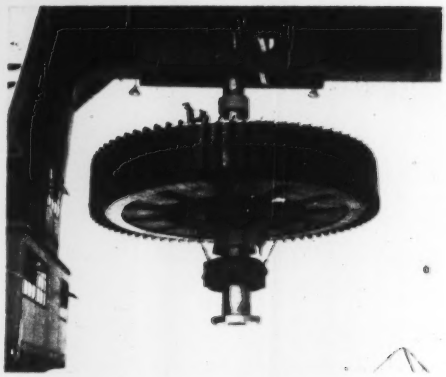
It's an unusually versatile crane drive that can either handle an empty hook at twice rated speed, or jog a 325-ton load to within 1/32 inch. Bureau of Reclamation's specifications for Davis Dam outdoor powerhouse crane called for just that type of operation.

The General Electric drive beat the requirements for this job by a wide margin—the full-load jogging accuracy in the lowering direction was .000114 inch.

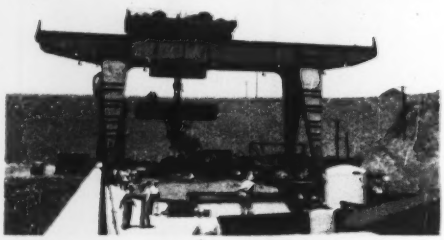
Electrified construction equipment can work for you too—can give you the fast, safe, efficient service your job calls for. And when you combine G-E motors and control with a G-E power distribution system, you'll get all that electrified equipment can offer with the extra benefits of G-E engineering assistance in application, installation and service. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

Ask him Today!

Whether you buy or build construction equipment, your G-E representative can show you how to do a better job—at lower cost—by complete electrification. Write him now, and he'll call on you at your convenience.



G-E hoist motors and control lift and accurately position turbine-generator rotors weighing over 300 tons.

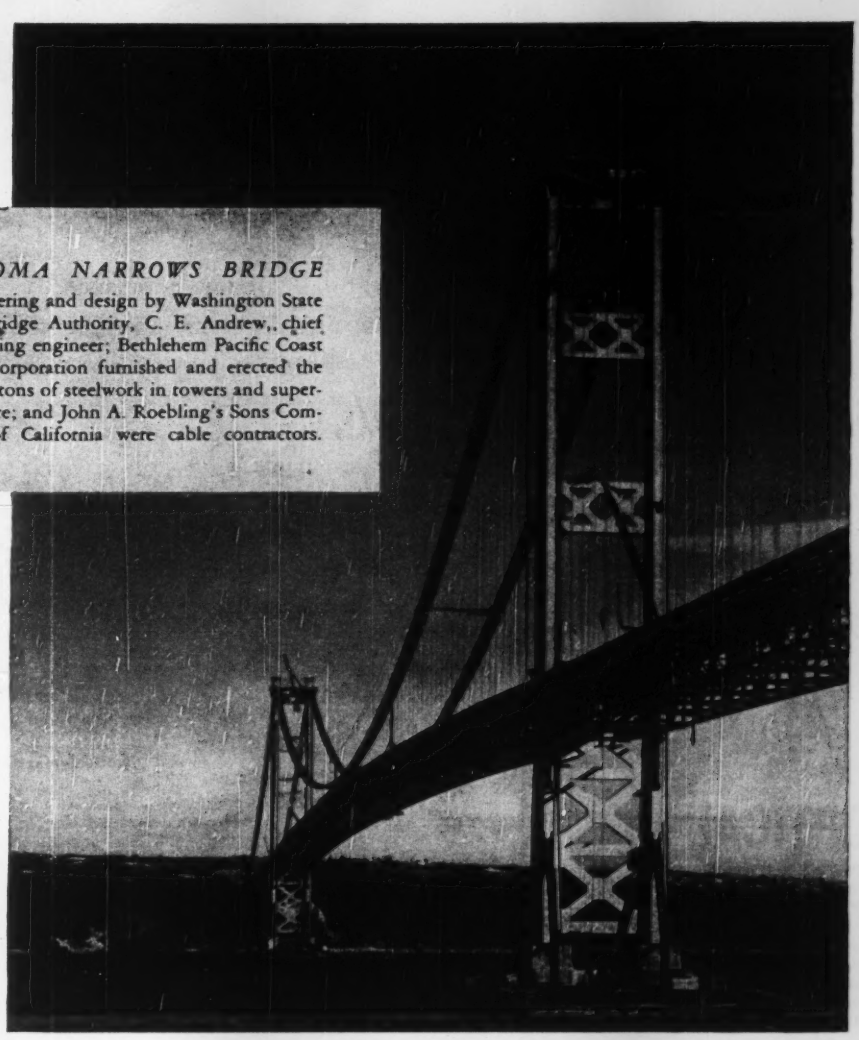


From hoist and trolley motors atop the bridge to master switches inside the cab, all G-E equipment on this Star Iron and Steel crane works smoothly to move heavy loads accurately and safely.

Electrified Construction
BETTER PRODUCT
LOWER COST

GENERAL ELECTRIC

664-13



TACOMA NARROWS BRIDGE

Engineering and design by Washington State Toll Bridge Authority, C. E. Andrew,, chief consulting engineer; Bethlehem Pacific Coast Steel Corporation furnished and erected the 16,000 tons of steelwork in towers and superstructure; and John A. Roebling's Sons Company of California were cable contractors.

Network of Steel Over Puget Sound

This is the Tacoma Narrows Bridge, spanning Puget Sound and connecting the countryside of the Olympic Peninsula with the Tacoma-Seattle area. The third-longest suspension span in the country, it measures 2800 ft between the towers, and 5978 ft in over-all length. Its main towers rise 502 ft above water-level, and the bridge cables supporting the structure's 4-lane roadway are 20½ in. in diameter.

The Tacoma Narrows Bridge was engineered and designed by the Washington State Toll Bridge Authority. Fabrication and erection of the structure's 16,000 tons of steelwork were handled by Bethlehem Pacific Coast Steel Corporation, Bethlehem's Pacific Coast subsidiary.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

FABRICATED STEEL CONSTRUCTION

For your WATCH CHAIN

WILD
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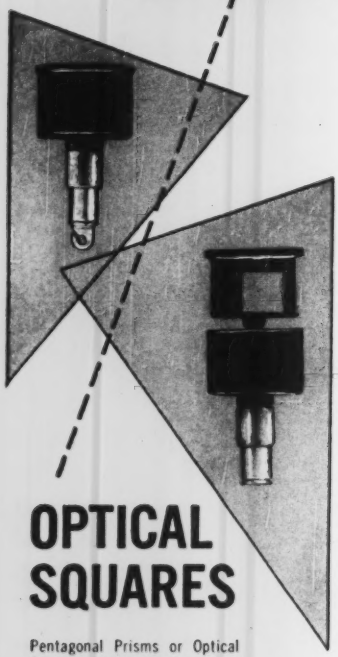

OPTICAL SQUARES

Pentagonal Prisms or Optical Squares the size of a plum bob and the weight of a jack knife can be kept on your watch chain.

The Optical Square is a handy tool for checking on location, for alignment, and for laying out right angles. Speedily used as a hand level, it has an accuracy in leveling of 1 inch in 200 feet. The instrument is available in single and double prisms.

For further detailed information on the operation and use of Optical Squares call or write for Booklet Q.

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 145 **NOVEMBER 30, 1950** **No. 22**

WALDO G. BOWMAN
Editor

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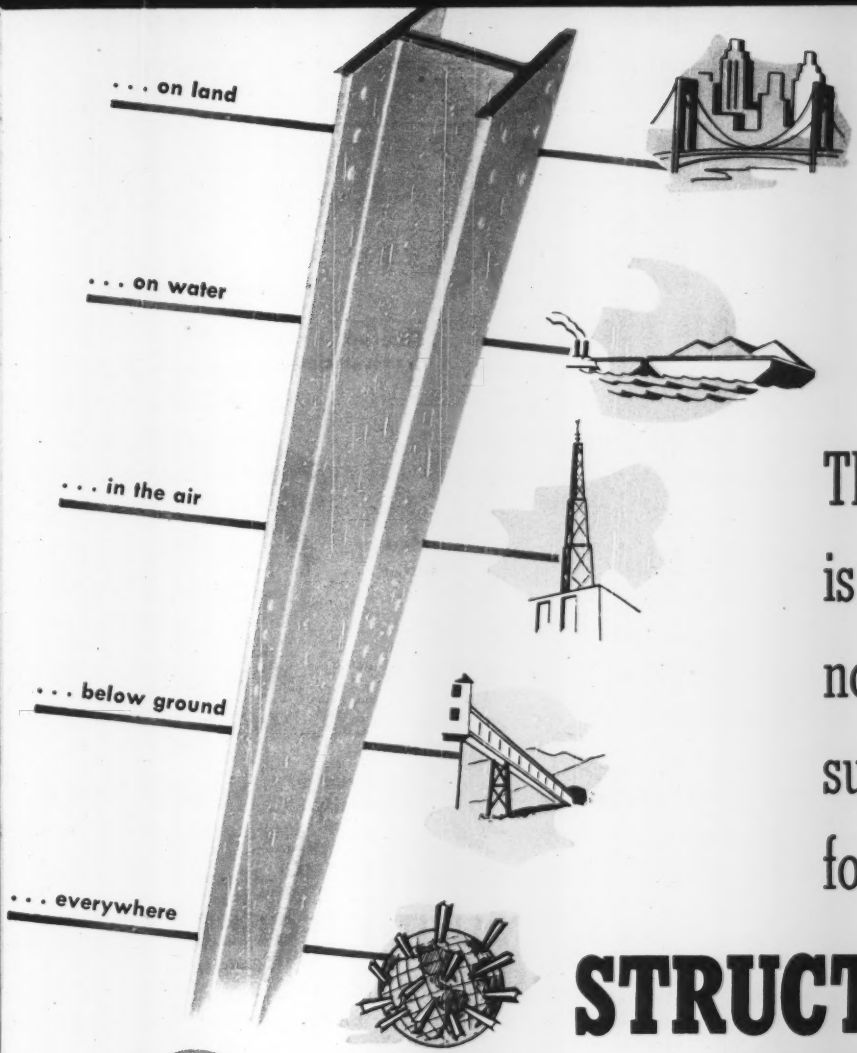

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AISC — American Institute of Steel Construction, Inc. — Founded 1921

- **STRENGTH**—the world's most widely used material for security, stability, economy.
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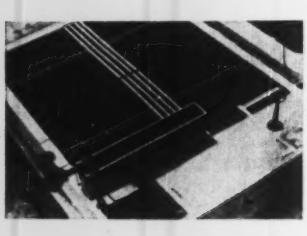
Floored by Fluorides . . .

Troubled by Turbidity . . .

Annoyed at Alkalinity . . .

Is there something wrong with your town's water supply? Hardness? Turbidity? Silica? Alkalinity? Fluorides? Color? Taste? Odor? If you are plagued by any one of them, it's a good idea to specify Permutit water conditioning equipment.

— *should know about the* PERMUTIT PRECIPITATOR!



The Permutit Precipitator brings you a new and more efficient means for removing impurities from water. It does this by precipitation, adsorption, settling and upward filtration. Its sludge blanket is kept fresh and active at all times. The Precipitator requires less space, less time and less chemicals than previous designs of reaction and settling tanks.

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RUBBER SHOCK INSULATORS: No spring twist . . . no lubrication

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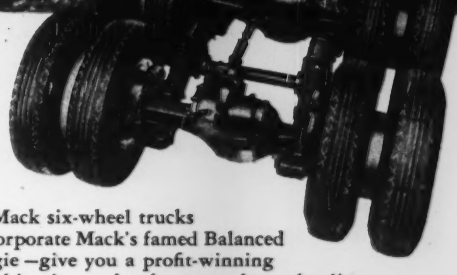
No weight transfer between axles
No bogie hopping, rearing or toe-stubbing

SIMPLICITY OF DESIGN: Achieves minimum maintenance



• Mack six-wheel trucks incorporate Mack's famed Balanced Bogie—give you a profit-winning combination under the most adverse hauling conditions. Here is no makeshift assembly—but a bogie that is a component and integral part of the complete truck unit.

No other trucks—for operation on or off the highway—offer you all the outstanding advantages you get with the Balanced Bogie in Mack six-wheelers.

Check them for yourself. They're your assurance of trouble-free, uninterrupted schedules; lower costs and increased profits. For the full story, see your nearest Mack branch or distributor.

Be Profit-Wise

modernize with

Mack

outlasts them all

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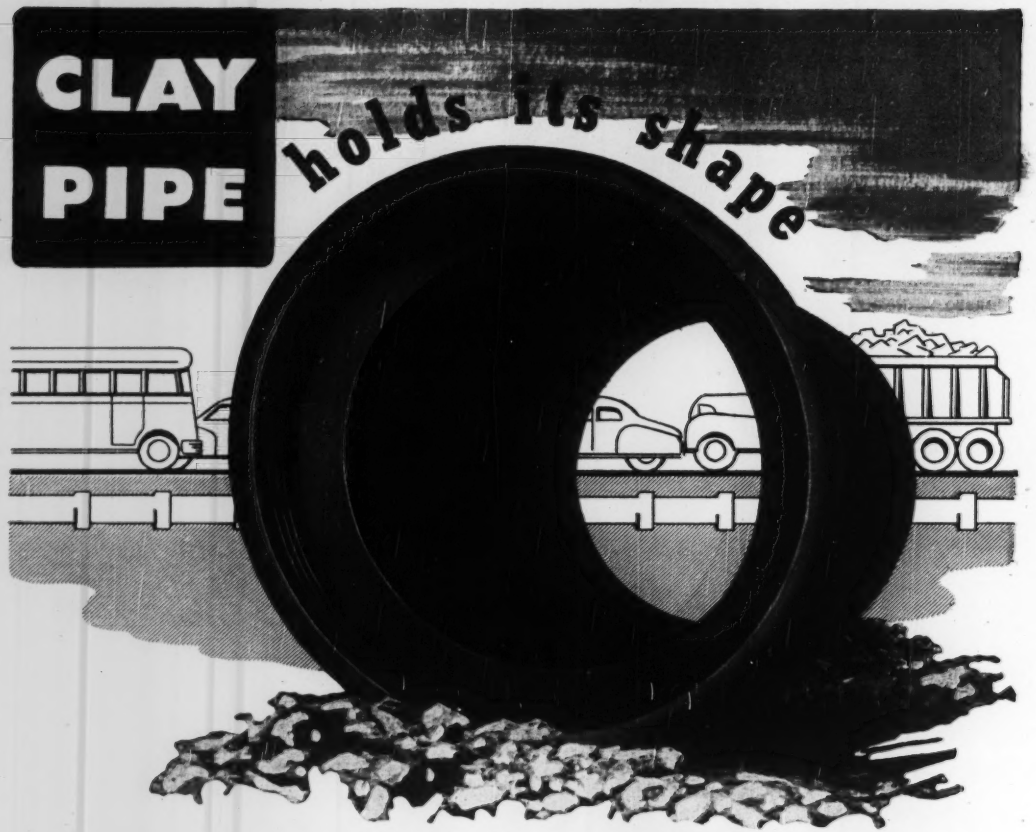
CLAY PIPE holds its shape



VITRIFIED CLAY PIPE is fired *hard* . . . it does not lose shape and flow capacity. Its rigidity keeps it round and smooth under the live or dead loads for which it is rated. Even under high temperatures, Clay Pipe holds its full inside diameter. It won't squash out — can't be cut or chewed by the rotary tools used to remove bulky obstructions from the line. In fact, Clay Pipe can't be affected by *any* of the common causes of sewer failure. It doesn't rust, corrode, melt, crumble, or disintegrate. Its permanent, trouble-free life doesn't depend upon sulphide control devices or the delicate balancing of such factors as sewage temperature, velocities and age of sewage. It's the *only* pipe built to withstand any operating conditions.

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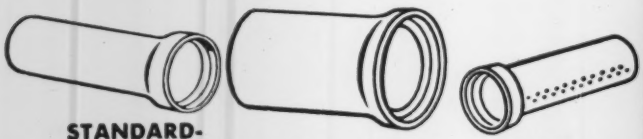
SPECIFY *Vitrified* **CLAY PIPE**



STANDARD-STRENGTH CLAY PIPE | **EXTRA-STRENGTH CLAY PIPE** | **PERFORATED CLAY PIPE**

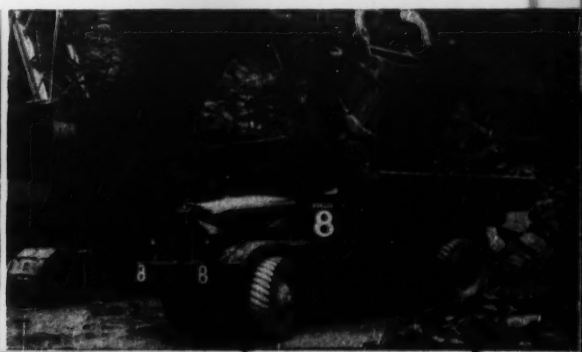
C-650-4

Euclid... Specialist

Built by a pioneer manufacturer of earth moving equipment, Euclids incorporate the know-how of years of experience. Every Euclid model is engineered specifically for off-the-highway work; all of the production and service facilities of Euclid are devoted to this type of equipment.

Heavy-duty design and construction throughout assure long life and dependable performance . . . more loads per hour and more profit per load on the toughest jobs. Some of the Euclid-built features are the planetary type drive axle, frame and body on all models, and double-acting hydraulic hoist for Rear-Dump and Side-Dump "Eucs".

Owners can depend on Euclid's world-wide distributor organization for parts and service when and where they are needed. Call or write your Euclid Distributor for complete information on models best suited for your job requirements.



The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

Cable Address: YUKLID *Code:* BENTLEY

EUCLIDS

STOP RUST!

YOU can STOP RUST... PREVENT RUST... on *any* rustable metal surface with RUST-OLEUM. Every day, rust eats away on your metal tanks, buildings, fences, stairs . . . everything metal inside and outside your plant. Yet, rust *can* be stopped and protection given economically with RUST OLEUM.

For more than a quarter of a century RUST-OLEUM has been *proved* under severe conditions of weather, fumes, salt air, salt spray, and other rust producing conditions. Railroads, shipyards, builders, refiners . . . nationally known users* in almost every field of industry . . . have found RUST-OLEUM the economical way to stop rust and prevent further rust. Architects, builders, engineers, maintenance men now specify RUST-OLEUM for primer, "shop coat", and finish coats.

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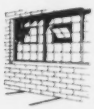
Be sure you get *only* genuine RUST-OLEUM for positive protection against rust! Specify *RUST-OLEUM* to your contractor or architect on any new construction, remodeling or maintenance work.

RUST-OLEUM is stocked and sold by leading industrial distributors in all principal cities of the United States and Canada. See Sweets for complete catalog and nearest source of supply, or write us direct for complete information.

*Names on request



RUST-OLEUM CORPORATION

2534 Oakton Street • Evanston, Illinois

NEWS BRIEFS

Indiana thrift—Three Indiana cities—Anderson, Kokomo and Richmond—are planning to build new school structures on parts of city park grounds in order to keep from paying excessive prices for privately-owned properties. All three will build large elementary school buildings. The Richmond property is near the downtown area but in Anderson and Kokomo the sites are in suburbs where new schools are badly needed.

Junket saves money—A quirk of economics gives Honolulu officials a free trip east every time they want to market a big bond issue. Latest example was the sale this month of $3,650,000 worth of territorial revenue bonds for a new Honolulu harbor pier to the First Boston Corp., Boston. It was cheaper to send two officials to Boston to sign the bonds than it was to sign the bonds in Honolulu and pay the insurance rates to transport the precious paper to Boston. As a result Robert M. Belt, chairman of the board of harbor commissioners, and Joseph Dickson, territorial auditor, got a free "vacation."

Hurricane repairs—Building officials of South Florida have issued an emergency order to roofing companies to fasten more securely all drip strips when making repairs or restoring roofs destroyed in the recent hurricane.

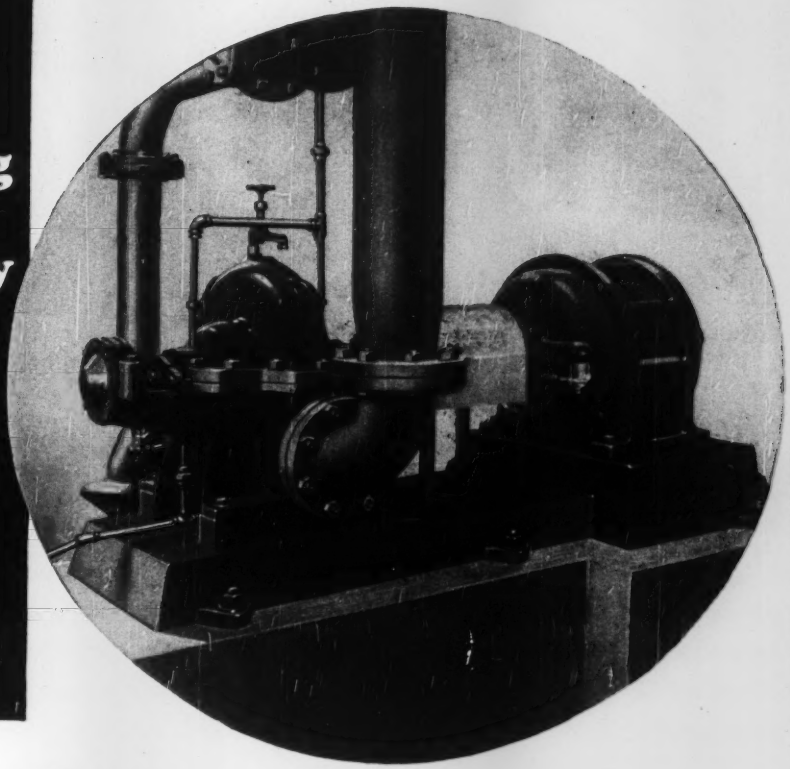
Gas sets bridge free—The Mississippi River Bridge between Greenville, Miss., and Lake Village, Ark., has been declared free of toll. The bridge cost $4,447,000 and was opened Sept. 18, 1940. Full payment for the structure would not have been made until 1965, based on tolls, but three utilities have signed a $150,000 a year contract to run gas and communication lines across the bridge and this has enabled authorities to eliminate toll charges for motorists.

Hope deferred—For the second time in a decade, the proposed new post office building for Bloomington, Ind., has been postponed because of a war emergency. Postal agents had almost completed negotiations to buy a site when word came from Washington that the project had been "frozen." The site had also almost been acquired just before World War II when plans were held up because of that emergency.

(*Continued on page 13*)

Pumping with Economy

A Midwest Utility Reports:



"Only minor maintenance over 3500 hours service"

Recirculating water at 100°, PH 5.0, this Economy 6" x 5" Type M double suction centrifugal pump replaced a conventional pump that did not stand up under the corrosive effect of water laden with tar acids, light oils, fly ash and small amounts of suspended silt. The user of this all-bronze Economy pump, a large mid-west utility, reports satisfactory service . . . minor maintenance.

Longer service with less maintenance is typical of Economy Pumps. Many improvements in design, workmanship and materials contribute to their higher efficiency, greater dependability and longer life.

For complete details on Economy Type M double suction pumps, write Dept. CB-11 for Catalog A-1147. For competent engineering advice on any pumping problem, call on your Economy Pump Representative.

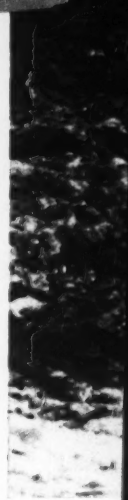
Centrifugal, axial, and mixed flow pumps for all applications.

Economy Pumps Inc.

DIVISION OF HAMILTON-THOMAS CORP. HAMILTON, OHIO

You Get these Big Bonuses

only with ALLIS-CHALMERS POSITIVE SEAL 1000 HOUR LUBRICATION . . . .



On all Allis-Chalmers tractors, you can operate six months on a 40-hour week basis with just one lubrication of truck wheels, front idlers and support rollers — units that are normally subjected to the greatest wear and are most difficult to service properly. Think what this elimination of daily or even weekly attention means in labor and lubricant savings . . . and in working time gained! Think of the safety factor, too — no costly damage by greasing neglect.

LOOK AT THESE BONUSES

Daily greasing periods are eliminated . . . there's less down time, more productive operating time.

Safety factor automatically protects tractor operation . . . adequate lubrication is assured for long operating periods . . . no costly damage by greasing neglect.

Repair parts expense held to minimum. Operator can safely select convenient time and spot to replenish lubricant.

Full protection is assured . . . grease kept in, dirt kept out. Daily cleaning of grime and dirt from truck frame to get at grease fittings is eliminated.

Lubricant cost reduced. Units are grease packed at the factory. Thereafter lubricant need be replaced only once every 1000 hours.

Reduced friction delivers more power. Equipped with tapered roller bearings, wheels rotate smoothly inside and out. Bearings are located directly under the load — reduce side thrust and wobble — last longer . . . easily serviced.

• • •

ADDED UP, THESE BONUSES MEAN SAVINGS IN MATERIAL AND LABOR COSTS PLUS GREATER TRACTOR PRODUCTION. THOUSAND-HOUR LUBRICATION ADDS MORE THAN *TWELVE FULL DAYS* TO THE TRACTOR'S OUTPUT *EVERY SIX MONTHS.*

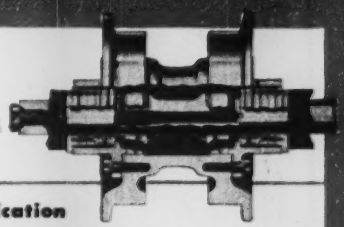
For Greater Production
For Easier Operation
For Simplified Servicing

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

HERE'S HOW IT WORKS

Designed and constructed with tapered roller bearings and Positive Seals, the truck wheels, front idlers and rollers are not affected by dust, loose sand, soft ground, mud or water.

The seal consists of two steel rings, hard and smooth as glass, held together tightly by steel coil springs. One seal ring is stationary, one turns with the wheel. The sealing surfaces are ground to within several millionths of an inch of perfect flatness and are lubricated as are the tapered roller bearings, from a large grease reservoir sealed inside the wheel.

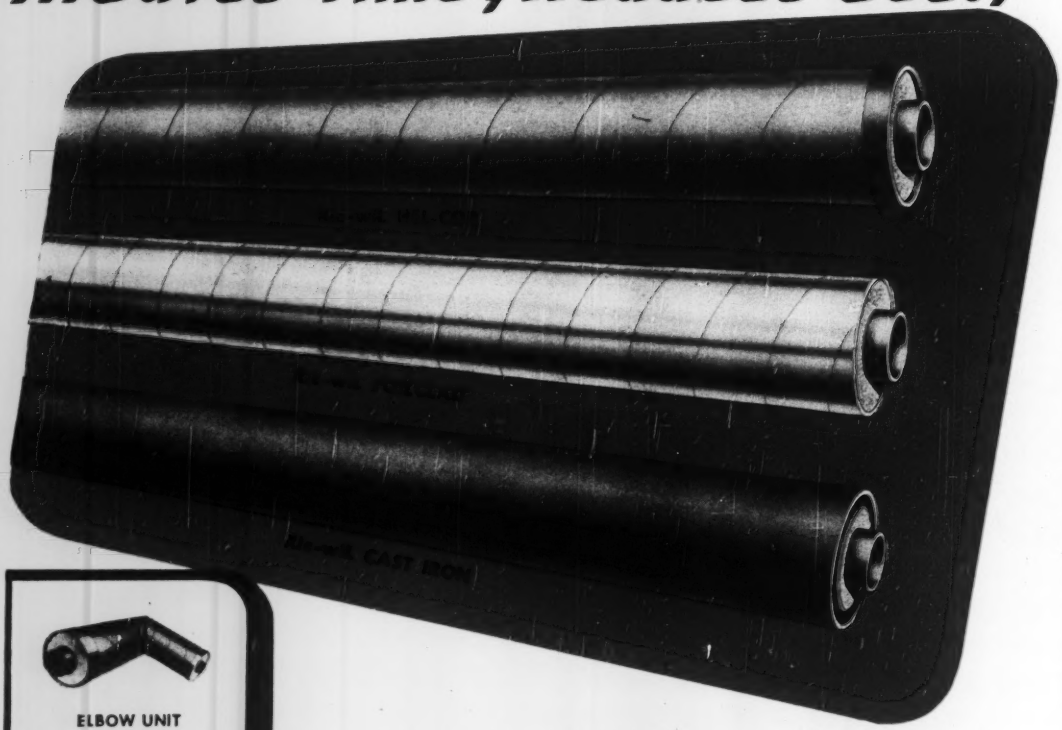


Flush Lubrication Protects Positive Seal Faces

Pumped easily into the shaft channels, lubricant washes smoothly through the rear and front roller bearings, then back to the shaft, flushing out past the grease gun nozzle. Old grease is replaced by clean, fresh lubricant. Low-pressure, flush-type lubricating action eliminates seal popping . . . keeps seal face smooth and clean of grit and dirt . . . reduces wear . . . increases seal life.

RIC-WIL IS YOUR SOLUTION TO INSULATED PIPING PROBLEMS

...Saves Time, Reduces Cost!



Take the finest known insulating, protective, and conveying materials. Add skilled prefabrication of insulated piping in modern plants under ideal conditions. Result—Ric-wiL Prefabricated Insulated Piping for underground or overhead use.

Add to these a full line of accessory units such as expansion loops and joints, tees, elbows, etc. Combine these with forty years of production engineering and installation experience, and the highly skilled and complete Ric-wiL engineering service . . . you get low installation cost and high operating efficiency of Ric-wiL Prefabricated Insulated Piping Systems. For service and responsibility call on Ric-wiL.

Our representative will be glad to discuss your specific problem at your request and without obligation.

For full technical information on Ric-wiL Insulated Piping Systems, call or write the Ric-wiL office nearest you or Dept. 10-Y in Cleveland, Ohio.

RIC-WIL

INSULATED PIPING SYSTEMS

OVERHEAD — THE RIC-WIL COMPANY · CLEVELAND, O. — UNDERGROUND

FOR FORTY YEARS THE GREATEST NAME IN INSULATED PIPING SYSTEMS

After 1,400 years—Bridging a gap of 1,400 years, the Marshall Plan is helping Turkey plan the development and reopening of lead mines which have lain idle since about 600 A.D. Under the technical assistance program of the Economic Cooperation Administration, American consulting engineer Ronald Campbell Rutherford of Los Altos, Calif., is en route to Turkey on a four-month contract with the Turkish government to help determine the advisability of reopening the mines and constructing a smelter plant to process the ores. If the project should prove feasible, it would be of great economic importance to Turkey, which now imports all of her lead.

Utility rooms—Youngstown, Ohio, city council has enacted an ordinance requiring utility rooms for all basementless houses. The bill sets up minimum requirements of 60 sq ft, with hot and cold running water, drainage, heat, light, and ventilation.

To move Covent Garden—The 319-year-old Covent Garden, one of the sights of London, has had to bow to progress. Located just off the Strand, it has created a traffic bottleneck and now is to be moved to a new site near the railway terminal.

Deluge needed—If in the next two months New England doesn't get the heaviest rainfall of a century, this year will go down on the records as the driest in the history of that section of the country. According to the U. S. Weather Bureau, the total shortage of precipitation there since last Jan. 1 is 10.20 inches. Many Massachusetts communities are worrying over present and future water shortage.

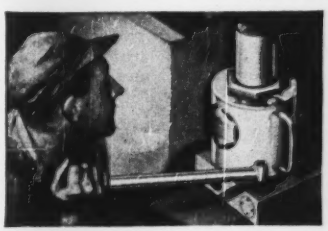
Top honors for a WAC—For the first time a WAC has been graduated with top honors in the Engineers School of Fort Belvoir, Va. She is Corporal Patricia C. Raygor, 20, who placed first in an engineering drafting class among 40 men and women students.

Court stops noise—The pounding noise of four paving breakers was hushed recently in San Diego, Calif., by court order. Superior Court Judge Dean Sherry was attempting to instruct a jury, but four workers nearby the court house made comprehension of his words difficult. Court recessed while the judge sent a bailiff out to silence the construction crew. The air hammering resumed as soon as instructions to the jury were completed.

Pay as you inter—It is claimed that a tractor-powered digger developed by Sherman Products, Inc. of Royal Oak,

(Continued on page 15)

You'll say it's a "Beaut" and a BRUTE!



50 TONS OF POWER

Look at this picture! *One man* with easy effort on a *short handle* exerts 100,000 lbs. of jack action! This hydraulic jack (model GB-11) weighs only 111 lbs. Its compactness and many exclusive features are typical of all Blackhawk Jacks.

THERE'S A BIG DIFFERENCE IN HYDRAULIC JACKS! Construction, mining and industrial men discover that Blackhawk Jacks last longer, serve better. It's the world's most complete line of Hydraulic Jack Equipment. And every model (1½ to 100-ton) is *one-man* operated. Order from your supply house. Write for catalogs. Blackhawk Mfg. Co., Dept. J36110, Milwaukee 1, Wis.

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SUPERIOR

Regular and Cone-Fast COIL TIES

Two types to meet varying job conditions

on form work for bridge piers and abutments, retaining walls, filtration and sewage disposal plants, and other engineering projects.

Your form erection crews can maintain fast erection schedules when using Superior Regular or Cone-Fast Coil Ties because simplicity is built-in. Helix coils, electrically welded to the longitudinal wires, receive the Coil Bolts with coarse thread that are easy to apply.

Superior Coil Ties, performing both as tie and spreader, are available in two basic types to meet varying job conditions:

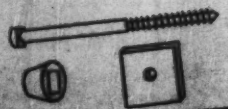
REGULAR COIL TIES are used with Spreader Cones when specifications require the tie metal to be 1″ or 2″ back of the wall face.

CONE-FAST COIL TIES. Exclusive feature is extension of the coil beyond the ends of the wire struts to hold the reamed cone snugly in position before the opposing panel is erected. Recommended where large panels are used for walls that do not permit a man inside the forms.

Both types are made for Coil Bolts ½″ to 1¼″ in diameter with safe working loads from 5,000 to 36,000 pounds and can be used with wood, combination wood and steel, and all steel forms.

Preplan your form work and cut costs by getting maximum use from your form panels. Our engineering department will help you on special problems.

EXCLUSIVE CONE-FAST FEATURE
Reamed coil cone fits over projecting coil end . . .



ECONOMICAL . . . these working parts returnable for full credit. Only coil tie is expendable.

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Mich., will excavate a grave in one-tenth the time required by the old pick-and-shovel method, thus reducing the high cost of burials. The lightweight digger is mounted behind a tractor, whose power take-off turns a hydraulic pump. Hydraulic pressure operates all digging motions. The machine has a below-surface reach of 8 ft and a 140-degree radius. The bucket will raise high enough to load a standard-size dump truck; capacity of one bite is 3½ cu ft. The digging unit can be attached to or removed from a tractor in 15 to 20 minutes.

Large scale salvage—About 284 miles of 6-in. pipe line cut up into 40 ft sections is being shipped to Standard Oil of Ohio at Cleveland, after having been salvaged in a huge operation by the Trojan Construction Co. of Oklahoma City, Okla. The pipe line, constructed 42 years ago, was buried at depths ranging from a few inches to fifteen feet. This salvaging job is made profitable because of the present shortage of oil casings.

Something cooking at Terminal Island—Contracts for a $1,000,000 central steam plant have been awarded by five sea food canners at Terminal Island, Calif. The 102-ft sq building 40-ft high, will contain four steam generators and auxiliary equipment used in cooking fish and for industrial purposes by five member companies. L. H. and B. L. Nishkian are consulting engineers, and Ofeco Construction Co. power plant specialists, will build the plant next year.

"Save Our Highways" club—Opposing the movement to raise truck weight limits in Tennessee, John J. Ross and Charles Walker have organized a "Save Our Highways" club which now has a membership of about 10,000.

THE COVER

Part of the fast shuffle now being dealt on the Monongahela River as Army Engineers revamp Lock 2 near Braddock, Pa. (ENR Oct. 19, p. 34) will be these welded steel floodway bulkheads. They'll be barged from the Dravo Corporation's Pittsburgh plant for use by the company's engineering division, which is acting as contractor on the lock job.

The work at Braddock involves changing two present 56 x 360-ft locks into one 110 x 720 footer (on the landward side) and a 56 x 360 ft chamber on the river side, all while heavy river traffic is kept moving. The project also includes construction of an operations building, floodway bulkhead, and installation of machinery, piping, power and lighting systems.

GOOD PUMPS FOR THE PROBLEM JOBS

for low-cost trouble-free handling
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CORROSIVE AND NON-CORROSIVE LIQUIDS

Vertical submerged centrifugal pumps for handling abrasives, solids, grit; and for operation in deep pits.

Horizontal end-suction circulating pumps.

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Horizontal and vertical non-clog centrifugal pumps designed for handling solids—various styles and bearing constructions to meet individual needs. The Shone ® Pneumatic Ejector—operates by steam, air compressor or plant air supply.

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For full information refer to Chemical Engineering Catalog; or Yeomans Condensed Catalog of Pumps for Processing Industries is yours for the asking. Use the coupon.

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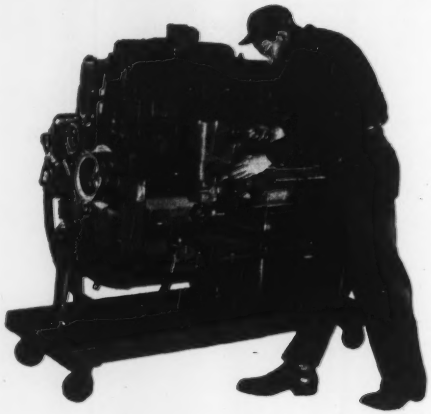
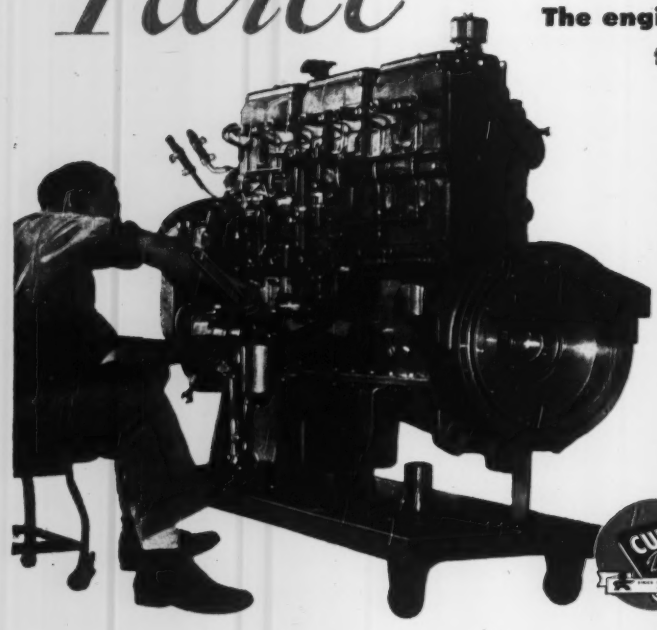
Built not once but Twice



The engine that's built better to give power at lower cost



Why is a lightweight, high-speed Cummins Diesel the best buy in economical, dependable power? *Because every* part of *every* engine is made under strictest quality control methods. Each engine also is actually built *twice*. After initial assembly, each engine is run-in on the test block. Then it is torn down and carefully re-inspected—after that it is re-assembled and tested *again*.

Perfection in engine craftsmanship . . . Cummins exclusive fuel system . . . an unexcelled service and parts organization . . . mean that rugged, dependable Cummins Diesels make more profits for power users.

There's a model for your power needs. Contact your Cummins dealer. He has more facts to show you about making more profits with

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Lightweight High-speed Diesel Engines (50-550 hp) for: On-highway trucks · off-highway trucks · buses · tractors · earth-movers · shovels · cranes · industrial locomotives · air compressors logging yarders and loaders · drilling rigs · centrifugal pumps generator sets and power units · work boats and pleasure craft.

THE CONSTRUCTION WEEK

DEFENSE MANPOWER—Reliance on voluntary, rather than compulsory, measures for filling defense manpower needs is reiterated by the new assistant secretary of defense in charge of manpower and personnel, Mrs. Anna Rosenberg. She also is strong for universal military service. More will be heard about the latter after the new Congress convenes.

WAGE-PRICE CONTROL—Steel may set off wage-price control soon. Producers plan to raise prices when they raise wages, according to industry leaders. And the wage-rise (fifth-round) will be permitted to run its course. Government wage stabilization policy, probably based on a sort of "little steel" formula, now is being drafted. Unions that haven't had post-Korea boosts when they come under controls will be allowed to get them, up to the "stabilization line." This limit will be geared to the fifth-round average—more than 10 cents for the big unions.

STEEL DISTRIBUTION—Ben Fairless, U. S. Steel president, says, his company "is now setting up . . . a well-planned system to insure the equitable distribution of available civilian steel supplies among all of our customers, with particular attention to the essential needs of small business and new business."

COMMERCIAL CONSTRUCTION CONTROLS—Last week ENGINEERING NEWS-RECORD reported the rather loose controls that are in store for rental housing (ENR Nov. 23, p. 23). Commercial construction presents a far tougher problem to the Federal Reserve Board than does rental housing. The board has not given up completely on the possibility of controlling commercial building through credit curbs. But none of the approaches so far suggested to the board makes much sense.

MORE M-4 EXEMPTION FOR STADIUMS—Soon after the National Production Authority granted an exception to its anti-recreational order, in favor of a $4,000,000 stadium in Milwaukee (ENR Nov. 23, p. 25), the authority smiled on two more such jobs. They are combination stadium-dormitories to be built at two Mississippi colleges.

PREFAB WORRIES—While the RFC frets about monthly costs exceeding $100,000 on the white-elephant Lustron plant in Columbus, Ohio, and lesser creditors clamor for pieces of the defunct company's hide, the prefabricated home industry may well be lamenting Lustron's fiasco. According to John J. O'Brien, president of Gunnison Homes, Inc., although the prefab industry has doubled its production and plant capacities in the past 12 to 15 months it still is unable to meet the demand.

UNIFICATION NOTE—If a proposal of the Society of Industrial Realtors goes into effect, NPA will have a central real estate office to coordinate all construction or leasing of warehouses, office or industrial space for the defense program. Such an office could eliminate agencies' duplication of planning and search for space; inter-agency competitive bidding also could be avoided.

OHIO VALLEY COMPACT—Authorities, commissions and other bodies deriving their existence from interstate compacts may have a vital interest in what goes on in Washington next week. The Supreme Court will begin hearings on the Ohio River Valley Water Sanitation Commission's case, which will decide whether West Virginia is empowered by its constitution to pay its share of ORVWSC's costs. The West Virginia state auditor says he can't release the money.

SEWERS CLOG HOUSING—While the bonding powers of special authorities undergo court review in Indiana (ENR March 16, p. 27), housing developments with no place to put their sewage are being held up. One of the latest sewer-clogged projects is a 500-600-unit project in Indianapolis. Existing sewers can't handle the anticipated load. A sewer district with bonding powers would be the problem's solution.

PAPER-MILL POLLUTION—Proposed construction of a $2,000,000 anhydrous-ammonia manufacturing plant at Tacoma, Wash., might indicate a switch in the stream-pollution policies of paper mills in that area. The anhydrous ammonia can be used in paper production to replace stream-polluting sulfite-acid solutions. The ammonia process, which increases pulp cost about $4.00 a ton, already is in use by a mill at Shelton. Several other mills are reported to be studying the process. Washington mills now are operating under an indefinite suspension of an anti-pollution order.

MOUNTAIN STATE POWER—The defense speed-up may push a power plant for Alcova Dam into the construction picture next year. Reclamation will ask Congress for the $6,377,000 necessary to get the central Wyoming job going. Alcova dam was completed in 1938. The power plant would increase by one-fourth USBR'S output in Wyoming, Nebraska, Colorado.

HIGHWAY LOADS—Bigger trucks and buses on Texas highways will be the object of proposals to be placed before the state's legislature in January. Truckers want to increase the gross-weight maximum from 48,000 to 72,000 lb; they would keep the 18,000-lb axle-load maximum, increasing truck length. Busmen also want to increase lengths. A fight is in prospect, because railroads had been campaigning to lower existing maximums on trucks.

Strong enough EMPTY to support a 100-ton rig!

MONOTUBE
tapered steel piles

cut costs, speeded construction of Nueces Bay Causeway

THIS special pile driver was designed and built to overcome the hazards of gulf storms and delay as well as to reduce the use of costly water equipment. By spanning three driven bents, it could overhang sufficiently to drive the Monotube piles in the next bent, fifty feet away. Monotubes 90 to 125 feet in length were driven in record time.

The striking feature of this ingenious operation was the way light, *empty* Monotube steel piles, without any added lateral bracing, easily supported the 100-ton driver. Monotube's additional strength gave them the extra ability to withstand the weight, vibration and pulling action of the rig . . . in other words, loads in excess of those for which they were designed. *In fact, the entire foundation was thus completely pre-tested long before the Causeway's completion and use.*

Here again Monotubes' strength, flexibility, and economy features helped solve construction problems—and reduced costs. Strong, yet light in weight, they're easy to handle. Monotubes have a range of lengths, gauges, tapers and diameters for varying soil conditions and different types of structures. There's minimum cut-off waste . . . they're easily extendible. Jobs started with Monotubes can be *completed* with them.

On foundation work of all types, Monotubes offer extra savings from start to finish. For complete information, write The Union Metal Manufacturing Company, Canton 5, Ohio.

Nueces Bay Causeway, Corpus Christi, Texas. Built by Texas Highway Dept., in cooperation with Bureau of Public Roads, under direction of D. C. Greer, State Highway Engineer. Contractors, Austin Bridge Co.

UNION METAL

Monotube Foundation Piles

CONSTRUCTION TRENDS

U.S. TRIES A NEW KIND OF CONTROL

Will indirect controls—today's approach in controlling construction—work better than the direct controls of World War II?

That's an important question for the construction industry. Any kind of control is bound to hurt someone. But direct controls proved particularly hard to live under during the last war.

Both control methods have the same target—to make materials and manpower available for essential defense construction. Both attack the problem by restricting non-essential building. But there the similarity ends.

The two methods use entirely different approaches. Direct controls involve detailed government direction of the use of manpower and materials. They work through priorities and allocations, combined with direct orders to limit non-essential construction.

Indirect controls, on the other hand, ration construction by making it harder to buy. Government cuts civilian demand indirectly—by raising mortgage requirements, for instance—instead of by direct restriction of building.

So far, the U. S. is putting its faith in indirect control of construction.

The government has tightened up on veteran's mortgages. Regulation "X" stiffens private mortgage requirements—more down, fewer years to pay.

Washington is shying away from direct controls. The ban on recreational building is the first—and only—direct restriction on private building.

But Washington has already issued DO priorities for military construction and other essential building. And the planners have made it clear that they are willing to go farther if indirect controls can't handle the job.

LAST TIME—DIRECT CONTROLS—Last time, the first prewar controls were "voluntary"—no priorities, no materials allocations. Later the Office of Production Management added priorities for defense work, but left civilian construction uncontrolled.

Voluntary controls worked in 1940—Mainly because there was still no real need for controls. The construction industry had enough slack to handle the early defense program and plenty of civilian work as well.

But the voluntary system broke down when defense work speeded up. OPM was swamped with builders' requests for priorities—papers piled up faster than the agency could process them.

The situation got worse when the government spread direct controls over the entire economy, civilian as well as military.

The history of L-41, basic construction order through most of the war, illustrates what happened under overall direct controls. Issued by the War Production Board in early 1942, L-41 put limits on the value of new non-military construction. All work over a certain dollar value had to be approved by WPB.

The order was hard to enforce—fully 24% of all docketed violations of WPB orders were violations of L-41.

Actually, the government created many of its own control problems. WPB was supposed to handle construction planning, but the armed services were independent. L-41, for instance, did not apply to the Army, Navy, CAA and some other government agencies.

Without effective central control, each agency made its own plans. The result was that total planned construction often added up to more than could possibly be built with the materials and men available.

Some improvements—such as better central control—helped the construction control program limp through the war. But, in spite of all attempts to improve it, control of construction remained one of the least successful of all World War II government programs.

1950 CONTROLS—THE NEW LOOK—The 1950 mobilization might have brought overall direct controls again, except for the fact that housing was the heart of the 1950 building boom—and private housing can be effectively cutback through indirect controls.

Mortgage controls don't have much effect on industrial, public or many kinds of commercial building. They can often be financed even when credit terms are made tougher. But higher down payments and monthly mortgage payments can cut the heart out of a housing boom.

Figures from the Bureau of Labor Statistics give an idea of how effective the new mortgage rules can be. BLS checked sales of one-family houses in nine cities in the second half of 1949, found that 37% were sold with no down payment. Of those in the $7,000-$7,900 class, 69% went with no money down.

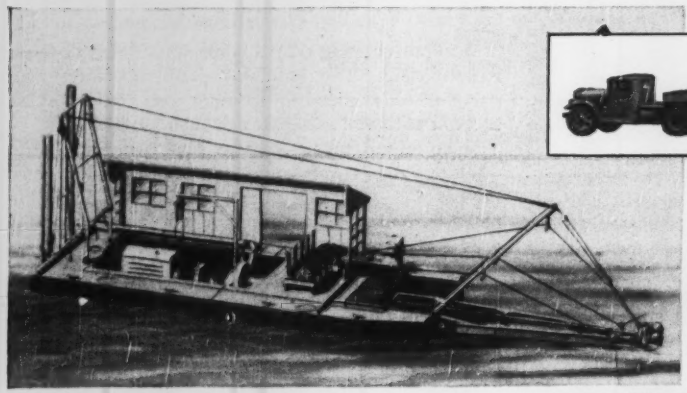
With these figures in mind, Washington officials expect new mortgage regulations to cut 1951 housing starts 1/3 below the 1950 level.

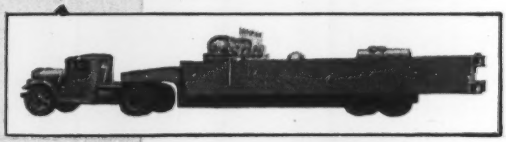
The U. S. will still add more direct controls, even if Regulation "X" works well. Defense work already gets DO priorities. Other controls will be aimed at building that mortgage rules don't touch. And controls in other industries—metal cutbacks, particularly—are bound to effect construction before long.

But—if indirect methods work—direct controls will be held to a minimum. If that happens, construction control—1951 version—may not repeat the confusion and waste of the last war.

NEW! ELLICOTT *Little Dragon* PORTABLE DREDGE

DESIGNED FOR: *Land reclamation • Increasing reservoir capacities • Mosquito elimination Stream pollution control • Highway construction • Flood control • Real Estate improvement*





SHOWN AT THE LEFT is a cutaway view of Ellicott's revolutionary *Little Dragon portable* Hydraulic Dredge. Close examination shows the dividing lines for disassembly. And directly above can be seen the center hull section mounted on a truck for shipment.

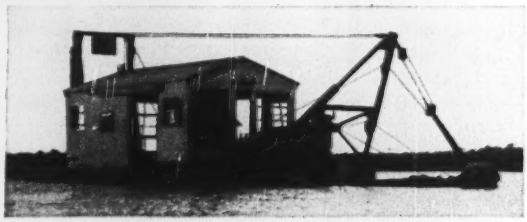
Here's Low-Cost Hydraulic Dredging at any location reached by Rail...Truck...or Water!

Dredging in remote areas is no longer a problem! Now you can save time, money and labor—get all the advantages of hydraulic dredging with the new *portable* Ellicott *Little Dragon* Hydraulic Dredge.

Operation is simple. After work is completed at one site, the dredge is easily disassembled into several self-contained units—each small enough to be shipped by rail, truck or water. At the new site, the center section is floated and other hull sections and deck house quickly and easily erected with unskilled labor.

Every Ellicott *Little Dragon* Dredge is backed by Ellicott's 65 years' experience building hydraulic dredges of every type, size and service. SEND FOR new BULLETIN 804—contains full details. For your copy, write: ELLICOTT MACHINE CORPORATION, 1603 Bush Street, Baltimore 30, Maryland.

If it's not built by ELLICOTT... it's not a LITTLE DRAGON



LITTLE DRAGON DREDGE working on a real estate development project located on the New Jersey coast. Low ground in the area is being filled in to make desirable building lots.

The *Little Dragon* Dredge will be covered by U. S. Patents

Power Grasping Checked

THIS COUNTRY owes Frank A. Hampton, chief presiding examiner of the Federal Power Commission, a vote of thanks for his courageous stand against continuing attempts of the Department of the Interior to block private development of power at Roanoke Rapids on the Roanoke River in Virginia. For the second time within a year Mr. Hampton has declared that a license to develop that site should be granted to the Virginia Electric & Power Co. In reaffirming his decision of March 17 he states: "An experienced and successful private utility company is ready, willing and able to proceed under federal license and regulation with the development and utilization of idle and wasting natural resources at Roanoke Rapids without aid of the federal treasury and substantially in harmony with the Army's plan for development of the river."

Only the most extreme advocates of federal development of this country's water power resources can be expected to condone what Secretary of the Interior Chapman has done in this instance. Without authority from Congress he has attempted to keep the Federal Power Commission from issuing a license to the Virginia Electric Co., although it has complied with all the requirements of the Federal Water Power Act. Had Secretary Chapman not insisted on a rehearing of the company's application, work on a needed new power project would now be well started. On the other hand, if he had had his way, development of the site would have been put off indefinitely.

Leased School Buildings

A NEW METHOD for obtaining needed school buildings was proposed to four local school boards in New Jersey recently (ENR Nov. 16, p. 27). Insurance companies agreed to build the schools and lease them to the boards, thus making it unnecessary for the school boards to get authority to issue bonds, sell the securities, and build the schools.

Such a proposal appears to have both favorable and unfavorable aspects. Without question it would simplify the work of school boards in getting new school buildings. It would, on the other hand, take from the voters in school districts the control they now have over their school board's capital investments, assuming that the leasing plan is found to be legal.

If widely accepted, the plan also has possibilities for improving the quality of our rural schools because the insurance companies would soon develop staffs of experts with a knowledge of the best practices in school building, knowledge that now is not available to the smaller school districts.

It can be assumed, therefore, that widespread adoption of such a plan would raise the standards of school building in this country.

But while the standards would be higher the cost per pupil would probably also be higher unless economies resulting from better planning, design and construction would offset the higher financing costs. And these economies would have to be substantial to bring the overall cost of schools obtained in this way below the cost of schools built with the proceeds of school-district bond sales. Insurance companies would need to obtain a somewhat higher rate of return on their money than the interest payments on school bonds. Also the companies would need to maintain some continuing supervision over their properties to see that they were properly maintained.

Despite such negative consideration the insurance company financing plan offers possibilities that should be explored.

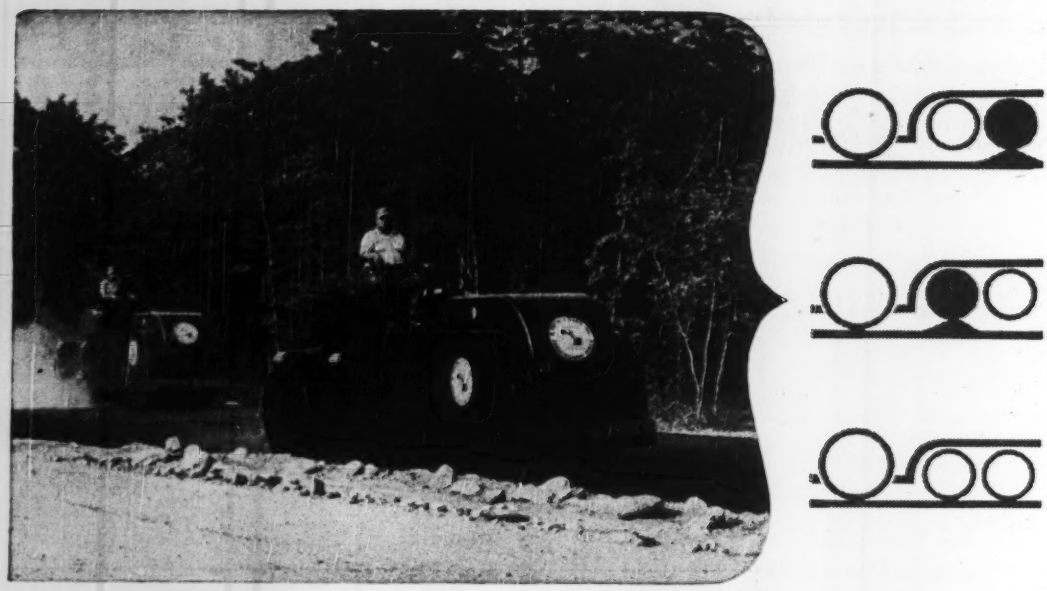
Research to Reassure

RADIOACTIVE WASTES—whose disposal is enveloped in a fog of ignorance and unknowns—are giving public officials, including some sanitary engineers, the creeps.

Fortunately, however, a technical beachhead has been established in the attack on this newest front of interest and ignorance to the sanitary-engineering profession. The first step is completion of a limited study of radioactive phosphorous on biochemical oxidation of sewage (ENR Oct 19 p 50). Still, more work needs to be done in this field before definite conclusions can be drawn.

In the meantime, the research build-up for a real break-through, goes on across the country: Radioactivity in the Columbia River is being studied by the Public Health Service and health and conservation officials of Oregon and Washington in cooperation with Hanford officials. White Oak Creek and Clinch River below the Oak Ridge National Laboratory are the scene of an ecological survey. MIT is evaluating water-purification methods for decontaminating radioactive waters. Harvard is looking into the fate of radioactive contamination in an open fresh-water reservoir. Johns Hopkins is looking into the effect of radioactive materials on sewage slimes and their takeup of radioactivity. And radioactivity in soils is under investigation by AEC jointly with the Geological Survey at Los Alamos, Oak Ridge, Hanford and the Brookhaven National Laboratory.

Sanitary engineers and public works officials can derive some comfort from the fact that AEC is looking into its waste-disposal problems with care and thoroughness. Reports of various research programs are to be made available at the earliest possible moment.



What is 3-AXLE SMOOTHNESS?

The answer to this question is a matter of record. By actual test, it is the highest degree of road surface smoothness ever attained with tandem roller. A leading state highway department proved that the Buffalo-Springfield 3-axle tandem produces surfaces 50% smoother than the average obtained with conventional tandems of equal capacity. Also noteworthy, the same test showed that the 3-axle tandem averaged 60% more tonnage compacted than other units on the project. As a result, the specifications for asphaltic surfaces in this state now permit the use of one less tandem roller with each spreader, *provided* a 3-axle tandem is one of the rollers employed.

Still another state specifically requires the use of a 3-axle tandem on certain plant mix surfaces.

There's a reason for this greater work capacity and smoother rolling results. The two large diameter guide rolls and the drive roll of the 3-axle tandem are rigidy mounted in a position tangent to the same plane. Thus, when one guide roll strikes a high spot in the pavement, the other is lifted clear of the surface and its weight transferred to the rolls retaining surface contact. Result — maximum compactive effort where it is needed most — on the high spots in the surface.

You can learn more about this transfer-of-weight principle and the many other exclusive features of the Buffalo-Springfield Model KX-25, 12 to 19 ton, 3-axle tandem from your nearest distributor. Why not call him today?

BUFFALO SPRINGFIELD
THE STANDARD OF COMPARISON
SPRINGFIELD, OHIO

ENGINEERING NEWS-RECORD

NOVEMBER 30, 1950 VOL. 145, NO. 22

AGC warns of pitfalls for excess-profits tax

Tells Congress how contracting business operates; how a standard law could be unfair; recommends acceptable provisions and basis for computing tax

Any new excess-profits tax law must take into account the peculiarities of the contracting side of the construction business—or else work unfair hardship on the industry--U. S. contractors have told the House Ways and Means Committee.

Speaking through an eight-page brief filed with the committee by H. E. Foreman, managing director of the Associated General Contractors of America, the contractors urged Congressmen to:

1. Exempt from new taxes the profits from all contracts awarded as a result of competitive bidding.

2. Exempt profits on all fixed-price agreements entered into prior to June 24, 1950 (Korean invasion date).

3. Exempt profits on long-term contracts made before June 24, 1950.

4. Exempt profits on all negotiated fixed-price contracts that are subject to renegotiation.

5. Set up specific methods of computing profits (for tax purposes) for the construction industry, including a specific exemption of $50,000 for general contractors.

• **Here's why**—Speaking particularly for his association's 5,700 general-contractor members, Foreman spelled out for Congressmen exactly what a general contractor does, what risks he takes, and why his business is different from that of other businessmen who might fall under the provisions of any new excess profits tax law.

"It (general contracting) is not comparable to such industries as mining, or manufacturing," said the statement. "The general contractor has no line of merchandise in manufactured form that can be sold and delivered immediately to a purchaser.

"The general contractor can only sell a completed structure—at a fixed price—months, and sometimes years before it comes into existence. The general contractor (cannot) determine to an exact degree the cost of the completed structure until it is completed and delivered . . . does not have an inventory to fall back on . . . must contend with weather conditions, work stoppages, materials shortages . . . his equipment must be used in all weather, cannot be completely maintained. . . .

"In many respects, the general contractor's operation is . . . comparable to a personal-service group. The very nature of . . . operations requires relatively small invested capital—most of which is represented by equipment, which . . . has a short life. . . . (His) operations do not generally call for large plants or buildings or similar fixed assets . . . long term borrowings are not of primary importance."

• **Penalty**—Due to his type of business the contractor, said AGC, is penalized by excess profit taxes, particularly if profits are related to invested capital. a tax based on earnings during a particular base period on invested capital results in a relatively greater rate of tax on general contractors.

Taking up its point-by-point recommendations for exemptions, the statement points out that contracts usually are awarded to the lowest responsible bidder, and that any increases in costs subsequent to the contract must be absorbed by the contractor; that no one could have forseen the Korean conflict and that work on contracts signed as that conflict started—or signed some time before it and continuing through it—cannot be considered to have any direct profit relation to the war situation, that renegotiation on contracts signed and performed through World War II brought large refunds to the government—refunds that were not based on income after taxes.

• **To be specific**—Specifically, said AGC, these things should be considered in figuring the base for computing any excess profits tax:

1. A base period embracing the

(*Cotninued on page 24*)

ELECTRIC DRIVE ARRIVES—For many months the subject of rumors in the earth-moving business, R. G. LeTourneau's electric-drive tractor was shown for the first time in Chicago Nov. 17. Present at the showing were Carl Estes, (left) publisher of the Longview, Tex., News Journal, and Mr. LeTourneau. Called a Tournatow, the unique machine has an electric motor and gear arrangement in the assembly of each of its four wheels. Power for the motor-wheels comes from a generator driven by a diesel engine. Details will be given in next week's ENR New Products pages. Wide World photo

Study of 150 cities shows impatience with federal civil defense planning

American Municipal Assn. hits delays in Washington; finds only one-third of cities have plans for civilian defense on the way

Federal sluggishness on civil defense comes in for sharp criticism from the 150 cities that responded to a questionnaire sent out by the American Municipal Assn. at the end of October. Replies of municipal executives complained particularly about federal procrastination in putting out civil defense manuals to guide state and local officials in their programs.

Federal delays in laying out the central government's share of defense costs also got criticism. Cities said they could not make up their civil defense budgets until they knew the answers on money matters.

Along with the results of the survey, the AMA fired a second round at federal muddling in the form of a committee report. Laying the groundwork for a resolution to be introduced at the American Municipal Congress—the organization's national convention—during its Washington meeting Dec. 3-6, the AMA civil defense committee last week reported to AMA President Quigg Newton, mayor of Denver:

"The greatest single failure of national civil defense leadership arises out of . . . unwillingness to state . . . hard facts in unequivocal fashion to the American people.

"There is no valid justification for the reluctance of the federal authorities to be as realistic and as plain-spoken about the magnitude and complexity of the task of organizing an adequate national civil defense as they have been and are about the problem of military defense and security."

Aiming a shaft at the recent NSRB Blue Book, United States Civil Defense (ENR, Sept. 28, p. 23), the committee said the document was good so far as it goes, but it has one glaring deficiency: lack of a timetable for completion of necessary steps in an all-out civil defense program.

To correct this weakness, the committee urges national authorities immediately to prepare and distribute to states and cities a checklist of jobs which must be started now and of others that can await federal decision on its own part of the program.

Only fifty of the cities—slightly better than one-third—have made a start on civil defense plans. Of these, 44 have advanced to the stage of building and equipping an organization to take care of defense needs.

Only two of the 143 feel that their civil defense organizations are as much as 75% ready to function in case of atomic attack. They are Norfolk, Va., and San Mateo, Calif.

On financing, many cities say they will make no appropriation until the federal government comes out with a policy to share local costs. But most cities are putting up money for local programs. Many say funds will be included in the budgets for the next fiscal year.

Local officials have been putting first things first: making surveys and taking inventories to determine their cities' resources and deficiencies in the early stages of developing local programs. A number of California cities—Stockton, Fresno, South Gate, Burbank, and others—have made equipment surveys.

A number of municipalities outside the primary target areas are studying the help they can give nearby cities. Bloomington, Ind., thinks it can help Indianapolis and Louisville, if they should suffer attack. Kingston—on the Hudson—has an evacuation depot for New York.

CIVIL DEFENSE

"Defense News" is the title of a monthly publication which has been started by the American Water Works Association, New York. The first issue discusses federal, state and local responsibility; organization patterns; control centers; local legislation; special task groups; and the importance of protecting public water supply facilities, including water decontamination procedure for application during an unforseen disaster.

Canadians prepare—Ontario's professional engineers have organized to provide advice to provincial and municipal committees in establishing civil defense programs. A nine-man central advisory committee of professional engineers has been appointed. In Toronto it has been suggested that the five-mile subway now under construction might be used as a bomb shelter if necessary to provide refuge in a sudden emergency.

School shelter—Arlington, Mass., is completing a $500,000 junior high school addition which has what is said to be the first bomb-proof shelter in a public school.

A basis for computing tax

(*Continued from p. 23*)

years 1946 through 1949 should be used in determining "normal earnings". A general contractor should be permitted to use the average of any two years out of this period, and the "normal earnings" should be based on the full earnings, rather than any percentage of earnings. "A general contractor has no assurance of continued earnings," commented AGC, "the expression 'It's chicken today and feathers tomorrow' is one fully appreciated by the contractor."

2. A general contractor should be allowed the appraised value of his equipment and total amount of borrowed capital, as well as any accumulated earnings, in figuring the tax base.

3. A general contractor should be allowed a minimum of $50,000 as a specific exemption, so that the "normal earnings" would be the average of the base period earnings, plus the amount of the specific exemption. (The last year of the last excess profits tax law permitted the contractor a specific exemption of $10,000. "Based on the experience of the general contractor . . . it was found that . . . $50,000 would be necessary to compensate in part for the hardship the . . . law caused . . .", says AGC.)

4. Relief provisions should be clear and specific, and should not be left to administrative interpretations and rulings.

5. A taxpayer should be permitted to pay as a maximum tax a combined income and excess profits tax of: 38% on all earnings up to $100,000; a combined income and excess profits tax of 45% on all earnings over $100,000 but not over $250,000; a combined income and excess profits tax of 50% on all earnings over $250,000.

• **Best thoughts**—The statement presented by Foreman was the actual product of AGC officials, legislative committeemen, legal counsel and headquarters staff, plus advice from many members, and advice from others outside the AGC.

More than 10 days ago, AGC prepared a preliminary draft on the basis of letters from members and a long-time study of the problem by the organization's Washington headquarters. This draft was then submitted to the executive committee for comment and then was worked into final form through the efforts of the headquarters office, the legislative committee (Glen W. Maxon, chairman) and the group's legal adviser, John C. Hayes.

Central valley floods worst in history works already in place are effective

Last week's floods in California's Central Valley, the worst in the history of the state, caused damage estimated by the Corps of Engineers at from $20,000,000 to $25,000,000. Only a minor part of this was in damage to engineered structures.

Week-long heavy rains—some 17 in. in parts of the Sierra—combined with run-off of early snowpack caused by unseasonally high temperatures filled valley rivers to record heights, flooding thousands of acres of farm land and causing some $2,000,000 damage to highways and bridges in the area. Of this, $1,250,000 represented washouts and destruction of a bridge on the Yosemite all-year highway.

• **Loss at Pine Flat**—Floods on the Kings River washed out the cofferdam at Pine Flat Dam, in early stages of construction by the Corps of Engineers, and covered the lower works for a loss of thousands of dollars.

Eight hydroelectric plants in the Pacific Gas & Electric Co. system were knocked out by flood waters for extended periods, and one power plant diversion dam, a 175-ft-long rock-filled, wooden-cribbed structure on the American River, was washed out. A wooden bridge over a diversion dam on the Kern River was washed away, carrying with it the dam's gate controls. At the peak of the flood, Narrows Dam on the Yuba River was spilling 100,000 sec-ft. Total damage was estimated at $750,000.

• **Groundwater benefits**—Water conservation experts, meanwhile, pointed out the silver linings of the storm clouds. Phil Dickinson, assistant regional director of the Bureau of Reclamation in Fresno, declared the "overall benefits of the storm should far exceed the damage caused." He explained that the floods ended a five-year drought in the state, and "in the long run may mean millions to farms."

The real tragedy of the floods, Dickinson commented, was that the $52,000,000 Pine Flat Dam, authorized 10 years ago, was not finished. If it were, he believed, "it not only would have prevented all the damage along the Kings, but would have saved precious water for use next summer."

He said that no floods took place on rivers that have flood controls projects.

"The level of Millerton Lake behind Friant Dam rose 40 ft with a peak flow above the lake at 44,900 sec-ft during the height of the flood," he said. "An estimated 75,000 acre-ft of water was saved for future distribution."

• **Sacramento works hold**—Low residential sections in Sacramento were flooded by the American River, which crested there at 45.75 ft above the overflow point. Levees protected the city proper.

The entire Sacramento River flood control system was in operation, with all 48 weir gates at Sacramento open. Water was flowing in the Yolo Bypass at 260,000 sec-ft at the height of the flood. Four weirs above Sacramento are without gates, constructed so the river flows into bypasses automatically at certain heights.

At Pine Flat, the 10 x 12 planking of seven of the 40 bays of the cofferdam went out.

J. I. Thomas, project engineer for the corps, said that little damage was done to the aggregate processing plant at the site, as dikes were thrown up to divert the water. In the half-hour time from the moment the cofferdam began to leak until it washed out, men were able to salvage some of the heavier equipment and drag construction offices to high land.

Col. H. R. Reifsnyder, executive officer of the Sacramento District of the engineers, said that the contractor, Guy F. Atkinson Co., "probably would not be required to stand all the loss."

• **Reno flood**—On the other side of the Sierra, Reno suffered record floods from the Truckee River, causing an estimated $3,000,000 damage.

The city's principal bridges and practically all of its buildings withstood the raging flood waters of the river, but two of the old bridges went downstream with the torrent.

One of the demolished spans was at Clarks Station, 18 mi east of Reno. It was an old structure, and plans were under way by Washoe County and Storey County authorities for its replacement. The other, the old rock street bridge in Reno, went out in the early stages of the flood. It had been condemned for everything except foot travel.

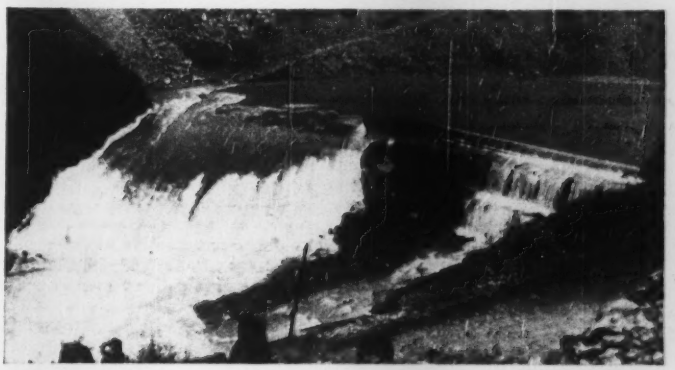
Oregon floods damage structures

Flash floods in Oregon recently claimed five lives, drove 2,000 from their homes and caused heavy damage to highways and farm crops. Chief streams involved were the Willamette and Umpqua Rivers and their tributaries.

State Highway Engineer R. H. Baldock estimated damage to highways at $100,000. Flood waters closed two major highways and many secondary roads, mainly by washing out shoulders. Two bridges were badly damaged. A section of a third under construction near Lookout Point, was washed out when falsework gave way.

Floods also breached the upstream cofferdam at the partly completed Detroit Dam (see photo). At the time, 77,000 cu yd of concrete were in place in the 1,500,000-cu yd structure.

• **Dams reduce crest**—Three completed flood control dams in the Willamette Valley (Cottage Grove Dam on the coast fork of the Willamette, Dorena on Row River and Fern Ridge on Long Tom River) reduced the crest of the flood by 1.2 ft at Eugene, 0.5 ft at Harrisburgh and 1.6 ft at Albany and Salem. Portland District Army engineers estimated that had Detroit and Lookout Point Dams been completed, there would have been further reduction in stages of the Willamette.



COFFERDAM BREACHED—For the second time in a week, Consolidated Builders, Inc., contractor on Detroit Dam (North Santiam River, Oregon) recently began cleaning out their construction area after floodwaters exceeded diversion tunnel's 13,000 cfs capacity. Breach in upper cofferdam is shown. Contractor opened lower cofferdam.

RAIL PRESIDENT AND DOZER—Ground-breaking for Southern Railway's $9,200,000 freight classification yard at Birmingham, Ala., was the occasion for this photo. Southern's president, Ernest E. Norris, sits at controls.

Irrigation men for "Man on Land" plan

Dissension marked the National Reclamation Assn. 19th annual convention, held in Spokane last week.

Reelection of President Harry Polk of Williston, N. D., for his fourth term and designation of Amarillo, Texas, as site of the 1951 convention were practically only tangible items for the record. All other officers were reelected too.

Dissension didn't originate at the Spokane convention, it came with the 1,000 delegates from the 17 western states.

Marshall Dana, Portland newspaper editor as well as first president of the association, brought it to the surface with his report as chairman of the basin development committee, urging a sharp reversal of policy toward Reclamation, with emphasis on control at the grass-roots level, rather than in Washington.

He termed his "MOL" (man on the land) plan a direct and positive answer to the CVA, the TVA and other valley authority proposals, while still holding for development of rivers on the basin level.

• **Resolution adopted**—The controversial "MOL" resolution was adopted in general by the association but referred to the board of directors for further study. Dana's plan, in brief, is as follows:

1. Rivers flowing entirely within one state shall be developed under the laws of that state. In such case, irrigation districts or groups of irrigation districts shall be empowered to contract with the federal government for development work. But ownership of the works should after repayment revert completely to the local group.

2. Interstate river basins shall be developed by compacts between the states with the federal government a party to the compacts. There should be full representation of all interests—particularly local interests—on an interagency committee formed to aid and advise the Interstate Compact Commission.

3. A basin accounting system should pool revenues of projects of basin developments and provide for proper irrigation subsidy.

• **Convention speakers**—Reclamation commissioner Michael W. Straus reviewed progress on reclamation construction during the five postwar years.

Wayne Aspinwall, congressman from Colorado, member of the House Public Lands Committee, said that the entire reclamation program was in danger because of lack of unity in the NRA. "When the NRA passes a resolution, all members should back it," he declared. "In the past we have seen some disgruntled members going around to the back door of Congress to lobby against an NRA-backed bill."

President Polk spoke for more local representation in reclamation planning, indicting the USBR for forcing "restrictions indicative of unwarranted federal control."

Other convention speakers included Maj. Gen. Lewis A. Pick, chief of engineers; H. T. Nelson, USBR regional director; and Senator Guy Cordon of Oregon.

FPG examiner okays Roanoke Rapids site

Virginia Electric & Power Co's $27-million, 91,000 kw plan financially feasible, examiner says.

A Federal Power Commission examiner again has recommended that the commission license Virginia Electric & Power Co. to develop the controversial Roanoke Rapids site. (ENR, March 30, p. 13)

Frank A. Hampton, chief presiding examiner on Nov. 15 reaffirmed his initial decision of March 17 in which he urged approval of VEPCO's plan for a 91,000-kw, $27-million project at the site. The Department of Interior, which opposes the company's plans, was granted a rehearing and presented additional testimony in June and July. (ENR, June 22, p. 17)

Chief arguments put forward by Interior at the reopened hearings concerned economic feasibility of the VEPCO plan, effects on navigation and federal vs. private development.

• **Project found feasible**—The presiding examiner concluded, "upon the evidence, it appears that the applicant's proposed project will be economically feasible." Navigational provisions of the Roanoke Rapids development have been approved by the army, and there is no indication that the federal government would develop the site if a private license were denied, Hampton found.

The examiner's decision is subject to review by the commission, either on appeal by the parties to the proceeding within 20 days or on the commission's own motion within 30 days.

IJC approves report of engineering board

An engineering report finding that an investment estimated to cost $3.9 million would be needed to determine if the Passamaquoddy tidal power project is feasible has been approved by the International Joint Comm.

The IJC report was filed with the U. S. and Canadian governments Oct. 23, and State Department officials in Washington are now studying it. IJC passed on with its okay the three conclusions of its international Passamaquoddy engineering board which reported on the project last April:

1. Feasibility of the proposed dams at Quoddy depends on foundation conditions which have not been adequately determined.

2. Cost of the engineering investigation would be about $3.9 million.

3. Costs of the investigation should be apportioned on benefits.

CONSTRUCTION BUSINESS

The "dollar gap" in construction

The difference between the dollars poured in and the construction poured out has widened as construction costs have soared. This "dollar gap" is illustrated in the accompanying chart which plots the trend in dollars–as they were committed for contract awards–against the deflated trend represented by the ENR Construction Volume Index.

This record year for dollar commitments shows 1950 construction dollar volume for 10 months 16.5 times higher than in 1913. But these dollars only bought 4.87 times as much.

The 1939 to 1950 gap isn't so wide. Considering 1939 versus 1950 dollars, the 1950 dollars committed for contracts in the first 10 months were 3.31 times as much as the 1939 dollar spent on similar construction in 1939. If 1950 construction could have been bought with 1939 dollars it would have taken only 2.13 times as many as the 1939 program required.

In dollars spent, 1950 tops all construction years on record.

But in physical construction put under contract 1942 was a bigger year than 1950 has been so far.

This is worth remembering in these days when construction is being artificially cut back because insufficient materials are available to supply normal construction and building needs while the nation strengthens its defense.

In outright 1950 construction dollars this year's contracts will top $11 billions for the first time in history. Back of this work already under contract is a $51 billion backlog.

Thus two facts testify to the continuing need of a heavy construction program to develop the physical plant of this country, 1–the relatively low volume of physical construction in post World War II years and 2–the large measured backlog of needed work.

The measurement of physical volume of engineering construction used in this study is a revised series for the ENR Volume Index.

The original ENR Volume Index deflated current dollar volume by means of the ENR Construction Cost Index. Since World War II a very high ratio of total volume has been in buildings, the cost of which is more accurately measured by the ENR Building Cost Index.

So the new revised Construction Volume Index is constructed by deflating the building volume with the Building Cost Index and the balance of construction, roads, bridges, waterworks, sewerage, waterways, airports, unclassified construction, with the ENR Construction Cost Index.

The accompanying table shows the new values for the revised Volume Index, compared with the old, and also compared with the dollar volume relatives using 1913 dollar volume as 100.

ENR Construction Volume Index compared with Dollar Volume

Year	ENR Revised	Vol. Index Old	$ Vol Relat 13 = 100	ENR Engr. Constr Vol. Millions
1925	218	201	426	$2,559
1926	246	228	475	2,854
1927	279	263	541	3,254
1928	305	287	595	3,579
1929	334	317	657	3,950
1930	273	260	528	3,173
1931	226	220	404	2,432
1932	134	127	203	1,219
1933	110	102	178	1,068
1934	120	114	226	1,361
1935	143	134	264	1,590
1936	204	185	397	2,387
1937	190	172	405	2,438
1938	213	197	464	2,792
1939	228	211	499	3,003
1940	299	269	664	3,987
1941	430	375	976	5,869
1942	546	471	1,331	8,006
1943	204	176	509	3,062
1944	110	96	288	1,730
1945	146	123	381	2,289
1946	298	248	844	5,176
1947	271	228	941	5,659
1948	304	254	1,200	7,219
1949	345	283	1,358	8,157
1950*	487†	393†	1,650*	9,914*

* 10 months. † 10-month rate

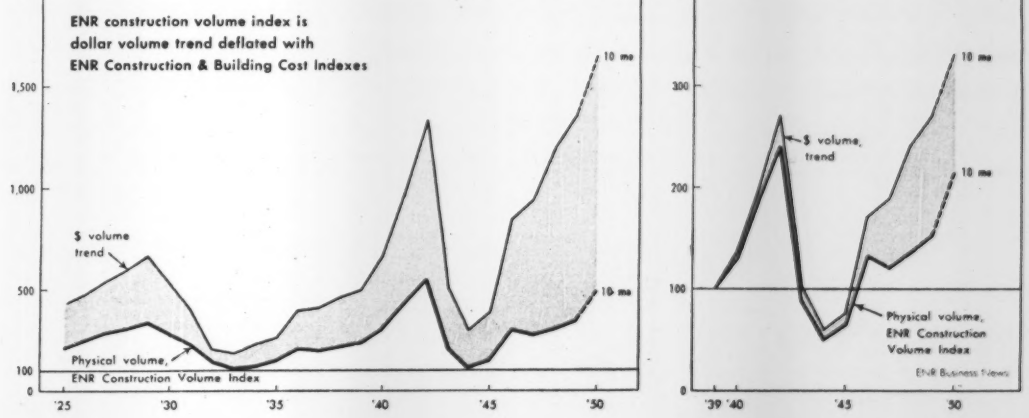
Labor notes

• **NLRB decision.** Contrary to arguments of former General Counsel Denham in a previous dispute, the National Labor Relations Board upheld the right of a union to strike against a member of an employer's association after negotiations had collapsed. The Board ruled it was unfair labor practice for other members of the association to lockout some 700 non-striking employees because of a strike against one member of the association employing only 60 workers, and rejected the employers' contention that a strike against one member was a threat to strike against all.

Denham's position in the previous dispute was that members of an association constitute a single unit and a strike against one member of the unit was a strike against the "entire organization."

In this decision, concerning the Morand Bros. Beverages, the Board said the union had not violated the Taft-Hartley Act by refusing to bargain. It had just substituted individual for association bargaining.

Dollars invested in engineering construction compared with the physical volume they bought



BIDS AND BIDDERS

(Major project news received after Construction Reports, page 54, went to press.)

Paper Plant—$30,000,000 paper plant development has been awarded to Merritt-Chapman & Scott Corp. New York, by the St. Regis Paper Co., New York. Plans include addition to company's mill at Cantonment, Fla. and a new mill at Jacksonville.

Residences and Shopping Center—F & S Construction Co., Phoenix, Ariz., plans to build 1,600 residences and shopping center at Aurora, Colo., at about $25,000,000. Ralph Haver, Phoenix, is architect and engineer.

Highways and Bridges—New Jersey State Highway Department, Trenton, has announced plans for modern Essex County Highway System to complete Artery 10, through Livingston, Roseland, East Orange, Montclair, Glen Ridge, Bloomfield, Belleville and a four-lane Montclair connection. Estimated cost is $200,000,000. Edwards & Kelcey, Newark, are consulting engineers. Plans for approach to Stickel Memorial Bridge, Essex County, at $2,900,000 and bridge over the Hackensack River, on Route 25, Hudson County, $5,000,000 were also made public.

Steel Mill—Granite City Steel Co., Granite City, Ill., plans $50,000,000 improvements, including coke ovens, blast furnace, open hearth facilities, blooming mill and other work, with docks. Coverdale & Colpitts, New York, are engineers on survey studies. Sverdrup & Parcel, St. Louis, Mo. are consulting engineers.

Sewers—City of East St. Louis, Ill., will take new bids Jan. 10, for sewer project. Estimated cost is $11,000,000. Bids taken Nov. 15, with a low bid of $13,000,000 were rejected. Horner & Shifrin, St. Louis, Mo., are consulting engineers.

Uranium Ore Refinery—U. S. Atomic Energy Commission, New York, awarded contract for study of existing research and development work on uranium refining processes, preliminary engineering report, and detailed design and engineering of refinery to Catalytic Construction Co., Philadelphia, Pa. Estimated cost is $10,000,000 and location of plant has not been determined.

Apartments and Shopping Center—Jonathan Woodner Co., Washington, D. C. and Dayton, O. will construct by own forces a $14,000,000 apartment, residences and shopping center group in Dayton.

Arterial Highway—New York State Department of Public Works, Albany, N. Y. reports a plan for a $13,397,600 arterial highway route through City of Utica and immediate environs, in Oneida County.

Steel Plant—Green River Steel Corp., Owensboro, Ky., plans steel plant to cost $8,000,000 on site in Owensboro, Ky. Sidney D. Williams is engineer.

Water Supply—Colorado River Municipal Water District (cities of Big Springs and Odessa, Tex.) voted $10,000,000 bonds and domestic water supply, including a dam in Scurry County. Freeze & Nichols, Fort Worth and Forest & Cotton, Dallas, are engineers.

Auto Assembly Plant—Chrysler Corp., Detroit, will soon let contract for $7,000,000 auto assembly plant, in Indianapolis. Albert Kahn Associated Engineers & Architects, Inc., Detroit, is architect-engineer.

Harbor and Wharf Facilities—Missouri-Illinois Bi-State Development Agency, St. Louis, Mo., will open bids Dec. 20, for wharfs, docks, warehouses, loading, unloading and transfer facilities at Granite City, Ill. Cost will be about $5,000,000. M. M. Kinsey is chief engineer for owner. DeLeuw, Cather & Co., Chicago, are consulting engineers.

Gas Pipe Line System—Oklahoma Natural Gas Co., Oklahoma City, plans gas pipe line, pumping stations and warehouses, throughout Oklahoma. Estimated cost is $6,000,000.

Housing—Housing Authority of City of Johnstown, Pa. will take bids Dec. 14 for housing project to cost about $4,900,000. Horace A. Bailey, Johnstown, is architect.

Paper Mill—National Gypsum Co., Buffalo, N. Y. has plans underway for a $4,000,000 paper mill to be constructed near Pryor, Okla.

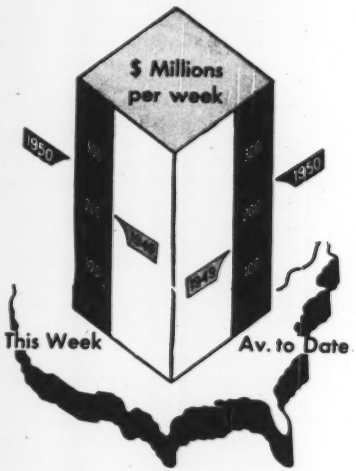
Sewage Disposal Plant—Board of Public Works, City of Evansville, Ind. awarded contract to contruct a sewage disposal plant and sewerage lines to Ryan Construction Co., Evansville, at $4,815,000. Consoer, Towsend & Associates, Chicago, are consulting engineers.

Plant and Office—National Biscuit Co., Cambridge, Mass. Plans plant and office at Belmont, Mass. to cost about $4,000,000.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926	1949
Constr. Cost	Nov.'50	527.85	253.74	110.67
Bldg. Cost	Nov.'50	388.85	210.20	110.56
Volume	Oct.'50	471	191	136



Activity This Week

As reported to ENR (in millions of dollars)

Amount of contracts let

Week of Nov. 30, '50	This Week	Cumulative 48 wks 1950	Cumulative 48 wks 1949	% chge
Federal	$31.4	$1,112.8	$980.1	+14
State & Mun.	101.3	3,492.3	2,936.1	+19
Total Public	$132.7	$4,605.2	$3,916.2	+18
Total Private	127.7	6,321.8	3,597.3	+76
U. S. Total	$260.3	$10,927.0	$7,513.5	+45

Contracts by type of work

	This Week	Cumulative 48 wks 1950	Cumulative 48 wks 1949	% chge
Waterworks	$4.8	$264.5	$190.4	+ 7
Sewerage	11.4	269.1	262.8	+ 2
Bridges	5.9	347.4	336.0	+ 3
Highways	22.9	1,165.9	853.9	+37
Earthwork, Waterways	28.9	404.3	509.5	−21
Buildings:				
Public	32.7	1,552.2	1,132.1	+38
Housg., pub.	19.9	311.7	355.8	−12
Housg., priv.	37.7	2,984.8	1,664.2	+79
Commercial	34.7	924.1	540.1	+71
Industrial	49.1	1,533.5	910.5	+68
Unclassified	12.3	1,229.4	768.2	+60

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 48 wks 1950	Cumulative 48 wks 1949	% chge
NON-FEDERAL	$522.0	$432.5	+21
Corporate Securities	2,139.8	2,083.0	+3
State and Municipal:			
Excl. housing	2,185.3	2,020.9	+8
Housing	648.4	777.9	+17
FEDERAL	2,829.1	1,711.7	+65
Total Capital	$8,324.6	$7,026.0	+18

Dallas slum clearance tied up by decision

Federal-aid program of Housing and Home Finance agency ruled out by Court; City slum condemnation stopped

A ruling that the City of Dallas and the Dallas Housing Authority could proceed with their $25,000,000 federal-aid slum clearance and redevelopment program has been reversed by the Dallas Court of Civil Appeals.

In reversing the district court's declaratory judgment, the Court of Civil Appeals ruled that a Texas law passed in 1937 does not empower Dallas and the Dallas Housing Authority to condemn and purchase slum property, clear it and sell it to private enterprise for residential development.

The Federal Housing and Home Finance Agency already had promised to pay two-thirds of the project's cost, and had reserved for it a $1,758,000 capital grant, contingent on okay by the Texas courts.

• **A test case**—The Dallas case is a test to establish the legality of such projects. Its outcome is being watched with interest by other Texas cities hoping to embark on similar projects.

• **Indianapolis**—Meanwhile, in Indiana the Indianapolis Redevelopment Commission has obtained court approval to clear blighted areas. The Indiana supreme court has denied a petition for a rehearing of a case involving property owners who do not want to relinquish land that the commission considered to be blighted, and therefore subject to clearance and redevelopment. Property owners question constitutionality of the state's redevelopment act of 1945. It is expected that litigation will continue.

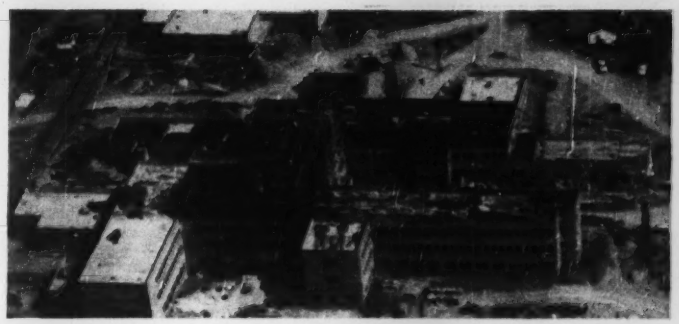
Ohio tax board okays housing tax exemption

In a decision regarded as of paramount importance to the state's public housing program, the Ohio State Board of Tax Appeals recently ruled that public housing is exempt from local realty taxes.

The tax board's action, affecting Cincinnati's Lincoln Court housing project was a first test of a 1949 law exempting such projects from taxes. The exemption was opposed by the county auditor. It was indicated last week that the matter under dispute would later be carried to the state Supreme Court for final adjudication.

Under laws in effect prior to 1949, the state Supreme Court had held that public housing projects were subject to local taxes. As a result, local housing authorities turned their projects over to the federal government.

When the new law was passed, the various authorities decided to test it in court before re-acquiring their projects from the Federal Public Housing Administration. Lincoln Court, for which the city of Cincinnati had favored tax exemption, was selected for the test.



VETERANS' HOSPITAL—Del E. Webb of Phoenix, Ariz., is general contractor for the 200-bed (general medical) hospital being built by the Corps of Engineers on a 27-acre site at Phoenix for the Veterans Administration. Value of contracts awarded to date: $3,546,327. Construction is scheduled for completion April, 1951. Lescher, Mahoney and Lunden of Phoenix are the architects. The 27-acre site is a portion of the Indian School area at Phoenix.

AGC executive committee names Horner new V. P.

Arthur S. Horner, president of the A. S. Horner Construction Co. of Denver, Colo., has been nominated vice president of The Associated General Contractors of America for 1951, replaces the late Gayle Armstrong.

Horner was nominated by the association's executive committee acting for the governing board in approving the recommendation of the nominating committee. The action was announced by Walter L. Couse, of Detroit, Mich., president of the AGC.

Constructors Assn. studies accident prevention

H. O. Sprinkle, manager of operations of the Monongahela Power Co., addressed the fall dinner of the Constructors Association of Western Pennsylvania on the need of a well planned accident prevention program. Sprinkle was given the careful attention of over 225 supervisory personnel representing superintendents and foremen interested in accident prevention.

Primary in importance, Sprinkle said, is the need before the start of each particular task of specific instructions to workers as to what they are to do. Immediate supervisors must carefully go over the proposed operation and point out any hazard that may be encountered.

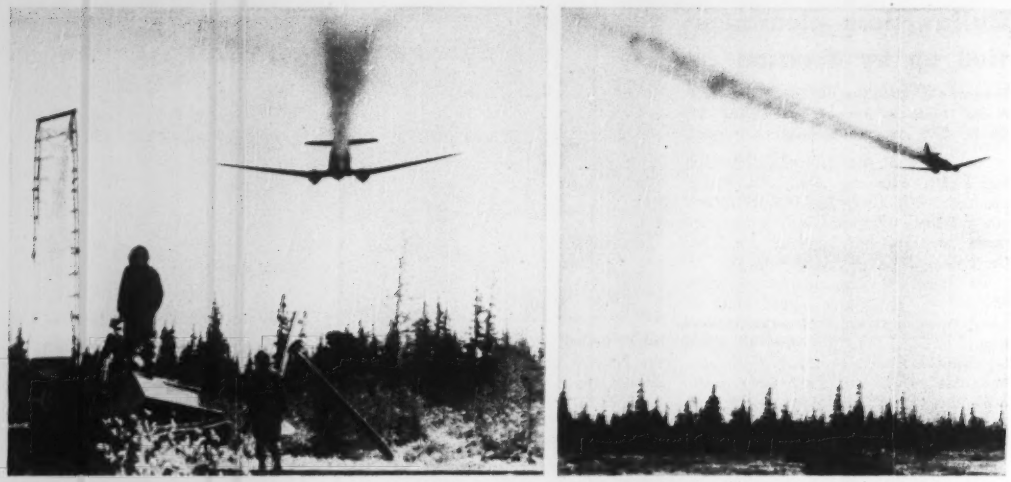
A planned program from the top level having the complete participation of everyone interested in a project is also important, Sprinkle stressed. Where cooperation can be obtained from the heads of the company, a job can be carried on more successfully.

How to apply for DO's and M-4 rulings

You can get rulings on M-4 construction restrictions, apply for DO (Defense Order) priorities and get information and help on working your way through the new government regulations through your local service offices of the Department of Commerce.

National Production Authority has taken over the existing field staffs of the Bureau of Foreign and Domestic Commerce to serve four functions:

1. Make available a complete supply of orders, regulations, modifications, rulings—about 20 have been issued to date.
2. Interpret these. Where issue is clear, field office gives immediate answer, on a fringe or doubtful case, teletypes to Washington for decision. Field offices can receive letters of application—no application forms have been set up. But all decisions on border cases or exceptions have to be made by Construction Controls Division in Washington.
3. Assist DO holders to find sources of supply.
4. Handle complaints and follow up reports of violations. A number of complaints of violations of M-4 restrictions have come in.



FLYING LOW and starting its track at a luminescent-cloth marking, a plane spews out a trail of mosquito-killing DDT in oil over the wilderness in northern Canada. Flying height varies between 150 and 350 ft, depending on crosswind.

Large-scale DDT spraying reduces mosquito nuisance

LOW-FLYING PLANES—laying down a steady mist of DDT and fuel oil—make summertime life more livable in forested regions of northern Canada.

Area-wide spraying around communities and airbases kills off 70 to 98 % of the voracious mosquitoes that thrive in swamps and phagnum bogs, says A. W. A. Brown, Professor of Zoology, University of Western Ontario, London, Canada. DDT solution is sprayed fast and effectively. One flight—of 30-min flying time—covers 1 or 2 sq miles, depending upon the solution emission-rate.

• **Plane and equipment**—A Douglas Dakota Mark I (C-47 or DC-3), the airlines' famous workhorse, is utilized for spraying. It contains two aluminum tanks mounted in the fuselage, outlet piping, a quick-opening valve, and a discharge pipe.

Total capacity of the tanks is 600 imperial gallons (US gal = 0.83 imp gal). The tanks are salvaged from Mitchell bombers (B-25).

Outlet piping (4-in. aluminum) along the plane's flooring leads from the sumps of each tank to the quick-opening valve. This valve is set in the floor just ahead of the loading door.

From the valve, a 2.5-in. emission pipe extends downward and 18 in. below the fuselage skin. Its tip is cut at an angle of 45 deg and faces backwards.

Spraying equipment can be installed in the plane in 3 hours or less by four men. The plane, therefore, may be utilized for other purposes. The only permanent modification is two 4-in. holes passing through the floor and fuselage skin.

• **DDT solution**—The spray solution is made up by diluting a 30% DDT concentrate in an aromatic solvent (Velsicol). This is then mixed with ten times its volume of domestic fuel oil. Mixing is done in a fuel tender equipped with a pump for filling the plane's tanks. The concentrate is purchased in 45-gal drums and the oil is supplied from local stocks.

As sprayed from the plane, the solution contains 4% DDT on a weight to weight basis, has a specific gravity of 0.9 and a viscosity of 2 centipoise at 25 deg C. When performance of a spraying operation is to be assessed the solution is dyed with 0.5% Dupont oil red (also known as Williams red).

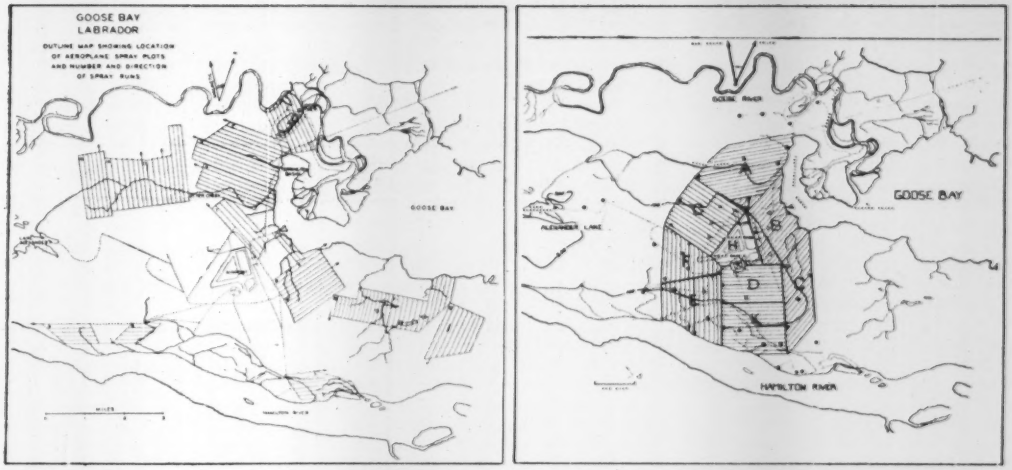
• **Out of the plane**—The anti-mosquito solution is emitted from the plane by gravity. Average rate of emission is 2 gal per sec with a 2.5-in. outlet pipe. With the plane moving at 150 mph, the solution is shattered into a fine spray. Droplets range in size from one millimeter down to 5 microns in diameter (1 micron = 0.001 mm.).The average diameter is 80 microns. However, half of the volume of the spray is contained in droplets of over 340 microns diameter (the mass median diameter).

When the plane is flown 100 ft above the ground in a 10-mph crosswind, the deposit is most dense 70-yd downwind and the droplets are most numerous 100-yd downwind. (The droplets are smaller where they are most numerous.)

• **Pouring it on**—In spraying, the plane flies over an area in parallel runs 200 yd apart. This pattern covers a square mile in 9 runs, each one-mile or 24-sec. flying-time in length.

Height of each run is adjusted according to the wind for each run: The product of height and crosswind component is made to range between 1,000 and 1,700 ft-mph. For example, the crosswind component of a 10-mph quartering wind is 7.1 mph (10 cos 45 deg). It requires a flying height, therefore, of 150-250 ft. Similarly, the component of a 30-deg 10-mph crosswind is 5 mph. It requires a flying height of 250-350 ft.

The advantage of spraying at a uniform height-wind product is that successive swaths are kept uniform and may be overlapped to give a regular deposit. The higher range of height-wind products results in the most even deposits, but there is a greater danger of material being lost downwind of the target area.



AIRPLANE TRACKS for spraying DDT. Mosquito larvae are killed by spraying over specific tracks in May or June (left). Adults are stamped out by concentrated coverage around an important point, such as the airbase.

Spray flights are made in the evening to avoid upward convection currents that interfere with the fall of spray on all but the most heavily overcast days. Early morning flights have been tried. They are not advisable because of the rapid onset of convection after sunrise.

Flight control is by a ground party. The reasons: It can observe the fall of spray and employ meteorological instruments. Directions are relayed to the plane in flight by two-way radio. The radio is also utilized to obtain wind readings from the control tower at the nearest airfield.

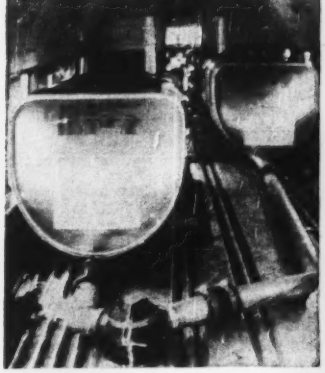
• **Ground control**—Areas to be sprayed are blocked out on a map. Strategic roads, rivers, lake shores and railroads are selected as starting lines. These lines are chained off at 200-yd intervals to establish marker points for aircraft tracks.

As the plane flies back and forth over the area emitting DDT spray, a large panel or luminescent cloth, placed at the commencement of each track, is moved from point to point as each emission run is completed. Arc yellow is the most vivid color for this cloth.

Direction of the spraying flight is given by a magnetic heading. Length of run is adjusted by number of seconds during which spray valve is left open. The co-pilot using a stop watch and intercommunication bell directs a crewman when to open and close the valve that releases DDT solution.

• **Dosage**—Excellent control of both mosquito larvae breeding and flying mosquitoes has been obtained with an emitted dosage of 0.25 lb of DDT per acre. Expressed in terms of a square-mile operation, this means the discharge of 160 lb of DDT over tracks totalling 216 sec flying-time. If the rate of discharge is 2 gal per sec, the 160 lb of DDT must be emitted in 432 gal of fuel oil, which constitutes a 4% solution. Good results may be obtained with lower dosages. Lower dosages may be sprayed either by reducing the DDT concentration or by cutting down on the discharge rate.

• **Get them early**—Airplane spraying—aimed primarily at AEDES larvae—is



TWO TANKS inside the fuselage hold the DDT-aromatic solvent solution. Capacity is 600 imp gal. The mixture is discharged by a quick-acting valve.

MOSQUITOES breed profusely in the Sphagnum bogs at Goose Bay, Labrador.

done in May or early June. About 90% mortality of larvae may be expected in sprayed areas. When areas of about 10 sq miles of forested country are treated, the adult-mosquito population is also substantially reduced.

Spray operations against adult mosquitoes are most effective when applied in the latter part of June. The nuisance at this time is already well-developed. The entire area surrounding a community or base is then treated as a solid block.

Experience in unbroken wilderness shows that spray results are better with large areas than with small ones. When a one square mile-area is sprayed, mosquitoes are suppressed for less than a week. The control, however, at the center of a treated 10-sq mile section persists for about two weeks. It lasts up to four weeks at the center of a 20-sq mile area. It is also of interest to note that the treatments will eliminate blackfly larvae from the streams in and downstream of the sprayed area. Treatment also kills off adult black flies but reinfestation is rapid.

• **Large-scale results**—A block of 19 sq miles at Goose Bay, Labrador, was sprayed with DDT at the rate of 1.16 lb per acre in 1950. This resulted in an immediate mosquito kill of 86 to 98%. The reduction remained as high as 70% one month later. Applications against adult mosquitoes were also carried out in the Northwest in 1949 and 1950.

During the summer of 1949, a total of 26 sq miles was sprayed around RCAF North West Command stations at Whitehorse, Watson Lake, Y. T., and Fort Nelson and Fort St. John, B. C. The dosage was 0.26 lb DDT per acre against mosquito larvae. Also, 19 sq miles were treated at Goose Bay with the same dosage. The average mortality of mosquito larvae at all stations was 91%. This larvae control, however, resulted in an average reduction of only 50% in adult mosquitoes for the remainder of the season.

Flood-water mosquitoes in the federal district of Ottawa were also successfully controlled by adulticide sprays in 1949 and larvicide sprays in 1950.

Finally—to combat a heavy infestation of mosquitoes arising from flooded areas—20 sq miles of Greater Winnipeg were sprayed by two RCAF C-47's on June 24-26, 1950.

• **Credits**—The procedures for large-scale aerial spraying against mosquitoes were developed by the Division of Entomology, Department of Agriculture, Canada, in co-operation with the Defense Research Board and the Royal Canadian Air Force. The work was supervised by Dr. C. R. Twinn, head of the Division's household and medical entomology unit. Dr. Brown was employed on a seasonal basis.

Equations solved fast by slide rule

Algebraic equations can be solved rapidly by slide rule when results accurate to three or four significant figures are satisfactory. All that's required is a knowledge of synthetic division and the exercising of a little judgment.

The technique can also be used with calculating machines to yield results of any required degree of accuracy.

A third-degree equation is solved here to indicate the method, but it is equally applicable to a polynomial equation of any degree.

The first step is to assume a trial divisor that represents a close guess as to the required root. Then, with the lefthand side of the equation as the dividend, the quotient is obtained by synthetic division. If the last term of the quotient is zero, the divisor is the sought-for root. If the last term is not zero, another divisor must be tried that will change the sign of this term. After two trials, closer estimates of the root can be obtained by interpolation or extrapolation and checked by further trials. Generally, equations encountered in engineering practice yield readily to this practice.

Suppose, for example, that a positive solution is to be found for

$$0.5x^3 - 4.5x - 5 = 0.$$

Several considerations, such as the fact that the root apparently does not lie between zero and unity and that the product of the roots must equal −5, leads to a first trial with 3 as the divisor:

$$\begin{array}{r} 0.5 + 0 \quad -4.5 - 5 \,|\, 3 \\ +1.5 + 4.5 + 0 \\ \hline 0.5 + 1.5 + 0; \; -5 \end{array}$$

As usual in synthetic division, the first line represents the coefficients of the unknown written in descending degree, with zero shown for missing coefficients. The third line gives the quotient, the last term being the remainder. And the second line contains the product of the divisor and successive terms of the quotient. The sums of the corresponding terms on the first two lines are the terms on the third line.

In this calculation, the first term, 0.5, is carried down unchanged into the quotient. With the index of the C-scale of the slide rule set over 3 on the D-scale, the hairline of the indicator is moved to 0.5 on the C-scale and 1.5 is read on the D-scale. This value is set on the second line under the second term of the dividend, and the two numbers are added algebraically to give 1.5 on the third line. Without moving the slide, the indicator is set over 1.5 on the C-scale and 4.5 is read on the D-scale. This value is written on the second line under the third term and added to it. In this case, the sum is zero, and zero is written on the second line in the next and last space. The final sum is −5, indicating that 3 is not the exact root. Try 4.

For this trial the C-scale index is moved to 4 on the D-scale, and as before, the hairline is moved to successive terms of the quotient to obtain the term for the second line of the division.

$$\begin{array}{r} 0.5 + \quad 0 - 4.5 - \quad 5 \,|\, 4 \\ +2.0 + 8.0 + 14 \\ \hline 0.5 + 2.0 + 3.5; + \; 9 \end{array}$$

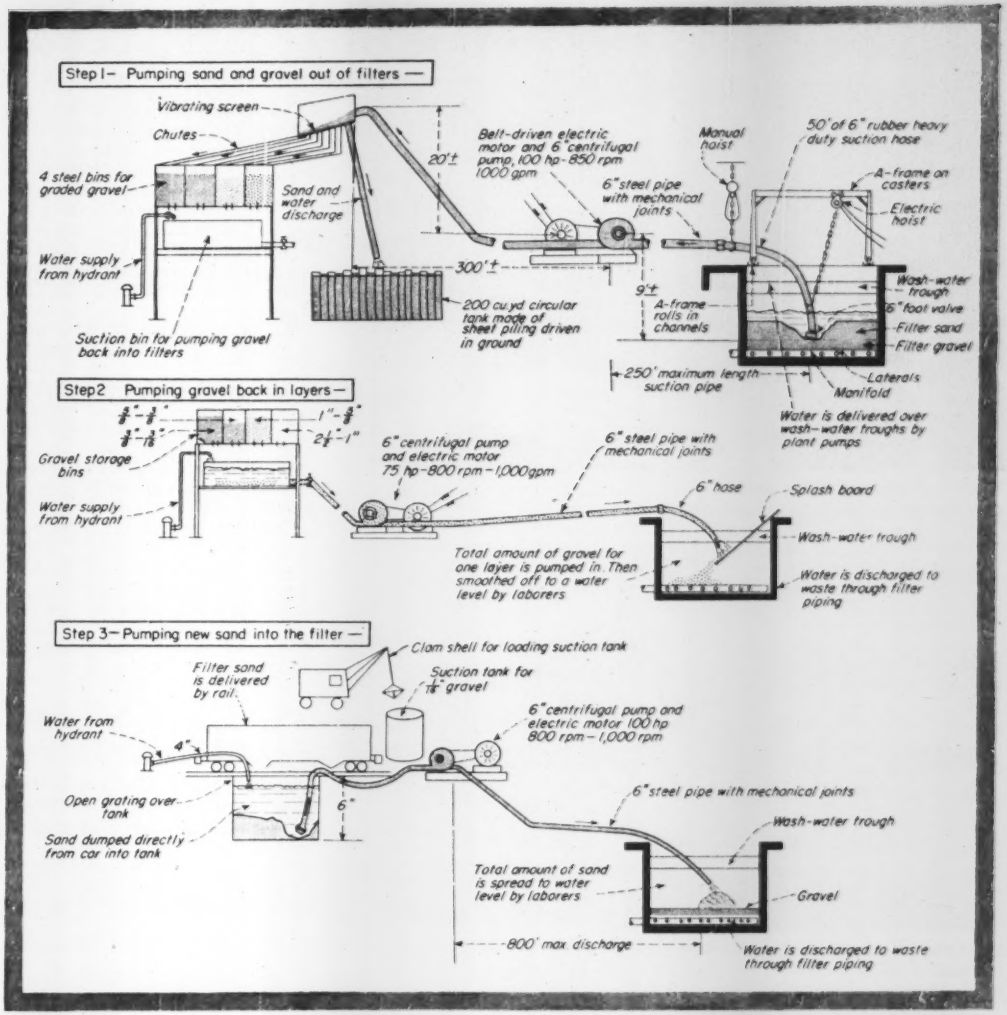
Since the last term of the quotient in this case is positive, the root lies between 3 and 4. For the next guess, interpolation between the remainder for 3 and the remainder for 4 gives a good trial value: (4-3) 5/(5+9)=0.4. Hence, try 3.4

$$\begin{array}{r} 0.5 + \quad 0 - 4.5 \quad -5 \quad |\, 3.4 \\ +1.7 + 5.78 + 4.35 \\ \hline 0.5 + 1.7 + 1.28; - 0.65 \end{array}$$

The division in this case is carried out as before, but with the index of the C-scale set over 3.4 on the D-scale. Since the remainer is negative, the root lies between 3.4 and 4. Interpolation again gives a good trial value: (4-3.4)0.65/(0.65 + 9) = 0.04. Therefore, try 3.44.

$$\begin{array}{r} 0.5 + \quad 0 - 4.5 - 5 \quad |\, 3.44 \\ +1.72 + 5.92 + 4.89 \\ \hline 0.5 + 1.72 + 1.42; - 0.11 \end{array}$$

In this trial, the index of the C-scale is set over 3.44 on the D-scale for determining the second line of the division. The remainder once again is negative, indicating that the root is between 3.44 and 4. To get the final answer or the next trial divisor, extrapolation between 3.40 and 3.44 may be used: (3.44-3.40)0.11/(0.65-0.11)=0.008. Consequently, the solution to three significant figures is 3.45.


Step 1— Pumping sand and gravel out of filters —
Vibrating screen
Chutes
4 steel bins for graded gravel
Sand and water discharge
Water supply from hydrant
Suction bin for pumping gravel back into filters
20'±
Belt-driven electric motor and 6" centrifugal pump, 100 hp-850 rpm 1000 gpm
300'±
200 cu yd circular tank made of sheet piling driven in ground
6" steel pipe with mechanical joints
Manual hoist
50' of 6" rubber heavy duty suction hose
A-frame on casters
Electric hoist
9'±
A-frame rolls in channels
Wash-water trough
6" foot valve
Filter sand
Filter gravel
250' maximum length suction pipe
Laterals
Manifold
Water is delivered over wash-water troughs by plant pumps
Step 2 Pumping gravel back in layers—
Gravel storage bins
Water supply from hydrant
6" centrifugal pump and electric motor 75 hp-800 rpm-1,000 gpm
6" steel pipe with mechanical joints
6" hose
Splash board
Wash-water trough
Total amount of gravel for one layer is pumped in. Then smoothed off to a water level by laborers
Water is discharged to waste through filter piping
Step 3— Pumping new sand into the filter —
Clam shell for loading suction tank
Filter sand is delivered by rail
Suction tank for gravel
Water from hydrant
4"
6" centrifugal pump and electric motor 100 hp 800 rpm-1,000 rpm
Open grating over tank
6"
Sand dumped directly from car into tank
6" steel pipe with mechanical joints
Wash-water trough
Total amount of sand is spread to water level by laborers
Gravel
800' max. discharge
Water is discharged to waste through filter piping

FILTERS REBUILT in three steps. Filtering materials were "vacuum cleaned" out of the tanks. Regraded gravel for four layers was pumped back in. New fine gravel and sand were also deposited by pumping. Flow was "lubricated" with plenty of water.

Round-trip pumping cycle rehabilitates filter media

TAKING used-up sand and gravel out of water filters is normally a slow back-breaking labor job. Putting it back carefully in layers takes even more time. And today's labor rates make such a rehabilitation job almost prohibitive.

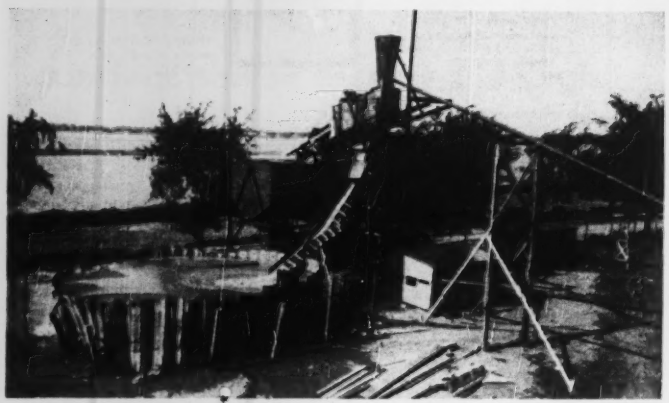
But at Buffalo's Col. F. G. Ward Pumping Station Contractor T. J. Christopher (who heads Buffalo Crane Co.) did both jobs with three centrifugal pumps. He pumped all the sand and gravel out of 40 filters, regraded the gravel, pumped it back into the tanks—a layer at a time, and topped off the gravel with 26 in. of pumped-in new sand.

Cost of rebuilding was $214,000. The contract covered 40 filters, each with two 50x14-ft sections. Total depth of gravel and sand was 3.58 ft. This means that enough material was pumped out of and back into the filters to cover a football field to a depth of about 4.5-ft—twice. Other figures: The filters hold about 6,100 tons of sand and 3,700 tons of gravel.

• **Taking it out**—Sand and gravel—lubricated with plenty of water—were sucked out of filter boxes by a 6-in. electric-motor-driven centrifugal pump. Withdrawal rate was about 1,000 gpm. Water was added to filters as needed over washwater troughs.

The procedure: A crew of three—down in the filter box—kept the foot

A 6-IN. FOOT VALVE on heavy-duty rubber suction hose was manipulated in the filter box by four men with an electric hoist.



SEPARATED on a vibrating screen. Sand and water goes to the tank, gravel into four-size bins. Water is wasted to Lake Erie; sand is trucked to dump.

valve on the end of the suction hose close to the material to get maximum withdrawal. An electric hoist—riding on a simple crane above the filter—raised and lowered the valve as needed. A laborer on the walkways above the filters operated a hoist. A manual hoist was also utilized to carry the rear section of the 50-ft rubber suction hose.

The crane consisted of a small I-beam on A-frames at each end. Casters at the base of the frames rolled in channels-with-flanges-up that spanned the filter boxes.

Most of the sand and gravel could be sucked out directly. Extra effort was needed to get all the largest size. With four manifold pipes—each with ten laterals—in the bottom of each filter half, it was not possible to run the foot valve along the bottom. It was, however, pulled between the laterals.

Gravel that clung to the pipes was knocked off with an air-driven spade. Then, it was washed to a corner of the filter with an 85-psi fire hose. From this point, it was sucked out by the pump.

Suction and discharge pipes were 6-in. steel connected by mechanical couplings. This speeded shifting of the suction pipe from filter to filter.

A separation plant—outside the filter building—received the waterborne mixture. It was discharged onto a vibrating screen. Water and sand were chuted to a 200-cy circular tank, formed by steel sheet-piling driven into the ground. Water flowed over the top of the tank and was wasted. Sand retained in the tank was clamshelled to trucks for disposal.

Gravel tumbling over the vibrating screen was separated into four sizes. Each size was chuted to a bin below the screen.

• **Underdrains**—With the underdrains laid bare ⅜-in. spray nozzles at 17.5-in. centers were put into the tops of manifolds. This was done by a crew of six men. The lead-off man sank guide

Holes in the bottoms of lateral pipes, men on a large drill bored these holes to full size. And two others followed tapping the full-size holes. The spray nozzles were screwed in by two laborers.

Holes in the bottom of lateral pipes, for the most part, were not clogged.

• **Gravel goes back**—Gravel with excess water was pumped back into the filter boxes by a 1,000-gpm centrifugal unit. Four grades salvaged by the separation plant were handled individually. The largest size was put in first; the finest last.

From its storage bin, the total amount of gravel for one layer was dropped into a suction tank. As water from a fire hydrant was continuously added, the mixture was pumped back into a filter against a splash board. Water was run to waste through the underdrains.

Deposited in irregular piles, the gravel was knocked down by high-pressure hosing. It was then smoothed off to a water level in the filter box by laborers.

This process was repeated until four layers of gravel (ranging from 2½ to ⅞ in.) were laid down as shown in the cross section.

• **New seal, new sand**—The contract called for placement of a one-inch layer of ⅞-in. new gravel on the layers of old gravel. It also specified that each filter should be topped off with new sand having an effective size of 0.45-0.50 mm and a uniformity coefficient of not more than 1.50.

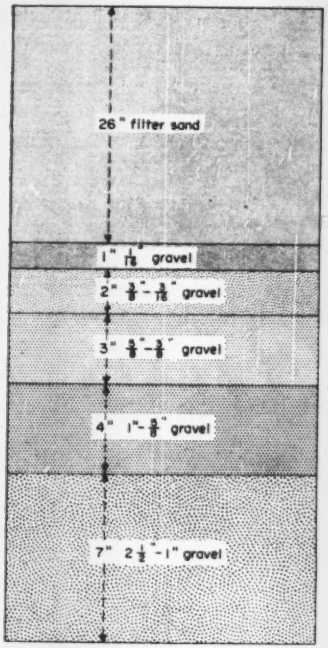
These materials were pumped in by a third 1,000-gpm electric-driven centrifugal pump. The 6-in. discharge line from the railroad siding was about 800 ft long.

The small gravel was pumped from a steel tank loaded by a clamshell bucket. Again, water was added continuously. The suction hose drew directly from the tank.

Sand, dumped from a railroad car into a steel tank under the tracks, was handled similarly. A safety grating was over the tank but under the tracks.

Both materials were spread to a water level in filter boxes by laborers.

• **Men and time**—Rebuilding took about three months. Christopher says that at least ten days were lost due to



SECTION through filter bed. New sand and fine gravel were put over four layers of salvaged and regraded gravel.

delays in receiving sand shipments. He also remarked that "A lot of bugs in the pumping systems had to be ironed out. And we know a lot more about pumping sand and gravel than when we started."

Christopher used two 8-hr shifts on the job. The day shift—with an operating engineer and four men—pumped the filters out. The night shift—with one operating engineer and 4 to 9 men—installed spray nozzles, pumped in sand and gravel and moved equipment for the next day's work.

Here is Christopher's estimate of actual time for pumping: Clean out filters—3.5 to 4 hr; deposit and level five layers of gravel—5 hr; and placement of sand—2 hr.

• **Better water**—The sand removed from the filters was put into them when the plant was built in 1926. (Filters probably should be rebuilt every 8-10 yrs.) And a small amount of turbidity in the filtered water was reported during the last few years. This was due, it has been suggested, to deposits on the sand grains that made filtering less effective and to cracks in the sand bed.

There were occasional complaints, resulting from algae-caused tastes.

Since the filters have been rebuilt, M. J. Stankewich, sanitary engineer of the Erie County Health Department, reports that the water now contains no measurable turbidity. And Herbert Shobert, maintenance foreman, says "We got no more complaints."

• **Credits**—The pumps were by Erie Pump and Engine Works, Medina, N. Y. Shobert inspected the work for the city.

John J. Kennedy is director of water for Buffalo and Frank O. Nehin is supervising engineer at the Col. Ward Pumping Station.

Safety group considers construction

Where should the responsibility for safety be fixed? How can it be made to pay increased dividends? And what's needed to make the construction industry more safety-conscious? These three challenging questions held the attention of nearly 200 members of the construction section of the National Safety Council at its 38th national conference held in Chicago recently.

"Responsibility for safety on construction should be placed squarely on the shoulders of contractor management and insurance companies who write their compensation insurance," declared G. W. Maxon, president, Maxon Construction Co., Dayton, Ohio. These two groups can form an effective team, however, only if outside agencies such as state industrial commissions, labor unions, federal government and others refrain from interfering with accepted safety requirements.

If such agencies insist on injecting themselves into the safety picture, declared Maxon, it will introduce a new element of cost to the contractor which, in turn, will be reflected in higher contract bid prices.

• **Four-to-one returns**—Similar views on management's responsibility for the success of any safety program were expressed by G. M. Read, chief engineer, E. I. du Pont de Nemours, who went on to say that safety on construction is a gilt-edge investment. "One dollar spent for safety," said he, "can get back four in operating savings."

By doing a small amount of research on safety, the average manager in industry would find that less than 1% of his payroll spent for safety—providing the program was well managed—would reduce accidents to less than sixtenths of one-percent disabling injuries per million exposed hours. In construction work specifically, concluded Read, a safety program costing only 1% of payrolls when used effectively has yielded performance 40 times better than the average for that industry.

• **Safety clinic**—Some of the shortcomings of contractor cooperation in safety programs were brought out in a clinic on safety problems headed by J. A. DeLuca, division superintendent, E. I. du Pont de Nemours.

Prefacing his remarks with the statement that great strides are being taken by a large number of contractors to increase safety on the job, DeLuca went on to point out several shortcomings in the field of construction safety. Some contractors, said he, believe that safety programs cost too much and that they might slow up the work. Others apparently don't know what a safety program is, or where it should begin or end. Still others don't seem to be too concerned over the possibility of disabling accidents.

It appears, said DeLuca, that a certain number of contractors—in honest ignorance—believe the workmens' insurance policies constitute the safety program. Others, really interested in safety, are led astray by poorly informed service groups or advisors. In some instances—possibly from a psychological viewpoint—contractors are not too enthusiastic about doing more good for labor. And many contractors are not aware that better a program can reduce insurance premiums.

That safety can be evaluated, analyzed and properly rated, was illustrated in a chalk talk by DeLuca. It is management's sole responsibility, said he, to initiate STA (literally translated to mean: "Safety is to be given with every task assigned," and shortened to mean: "Safety Task Assignment"). This means that top management, as well as all supervisory personnel down the line, must give sufficient caution, admonition and instruction in delegating each task to be done.

Another yardstick in safety, said DeLuca, is VFR (violation frequency rates). This unknown factor can be determined by plant-area or for any of the various crafts. It can be expressed by the formula:

$$\text{VFR} = \frac{(\text{number of violations}) \times 100}{\text{number of workers}}$$

where, the "number of safety violations" are those in a single day and the "number of workers" are those carried on the payroll that same day.

Harry J. Kirk, in charge of research and safety, for the AGS, was elected general chairman of the Construction Section, National Safety Council, succeeding Mr. DeLuca.

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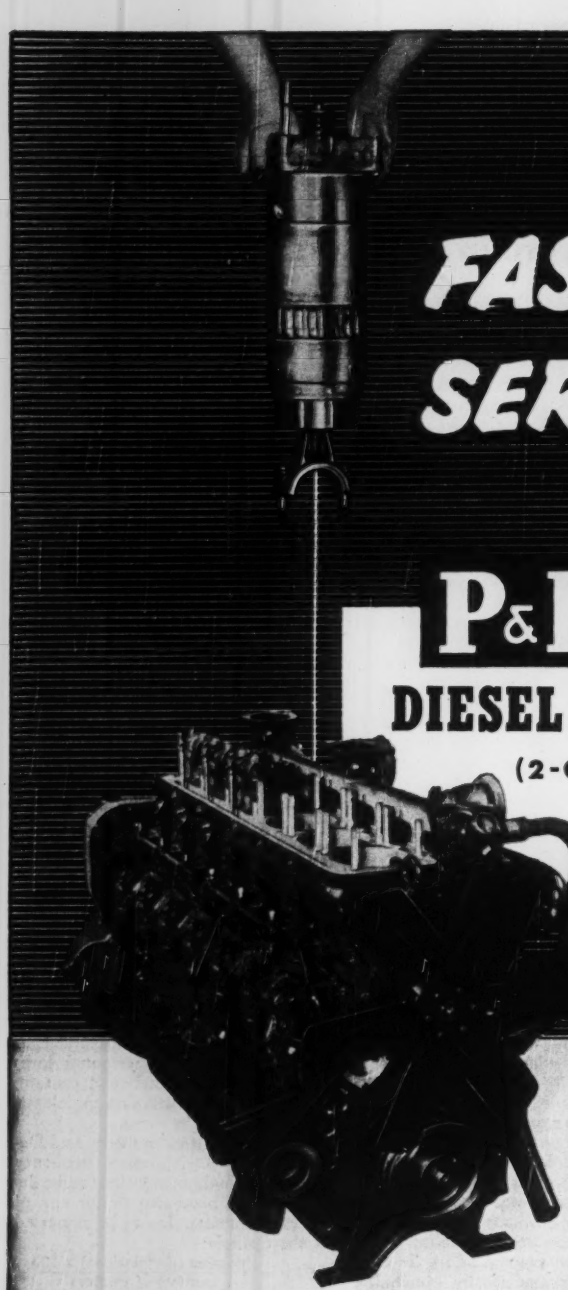

● The complete cylinder assembly is identical for *all* P&H Diesels — 1, 2, 3, 4 and 6 cylinder models. Replacements can be made in the field — from one engine to another — saving hours — even days on the job. Another good reason for standardizing on P&H Diesels. For literature, write Diesel Division, Harnischfeger Corporation, Port Washington, Wisconsin.

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PORT WASHINGTON WISCONSIN, U.S.A.

Boilerplate, thick concrete complicates road drain job

ONE CONTRACTOR'S long-ago expedient proved to be another's headache on an underpass drainage job in San Diego, Calif. The headache was the inheritance of the Johnson-Western Co., which contracted with the city of San Diego to install new drainage facilities in the structure that takes Witherby Street under the Santa Fe Railroad tracks.

Johnson-Western was to dig a ditch down the underpass pavement to house new 18-in. dia concrete pipelines. But the contractor found that the pavement was as much as 42 in. thick and included sheets of boilerplate steel.

As nearly as anyone can guess, the original builder must have encountered mud or sea water welling up in his excavation. To stop it, he simply dumped concrete in the wet spots, topped it with the boiler plate—and then went ahead with the paving.

When ordinary pavement breakers and jackhammers failed to pierce the thick pavement, Johnson-Western decided that blasting technique was necessary.

• **Manhole first**—Working from a manhole that had been dug out laboriously by hand, bits of pavement were carefully blasted away for the 42-in.-wide ditch. In each blast, three parallel charges were used, one at the middle of the ditch line with a No. 1 delay fuse and the other two with No. 2 delay fuses flanking the first. The charges were loaded into holes drilled in the pavement.

Sixty percent gelatin dynamite was used and the charge varied from 2/3 to 1 lb per hole, depending on the thickness of the concrete. Spacing between successive charges was 12 to 15 in. Heavy timber pads and sandbags were placed on top of the blast areas to prevent damage to the remainder of the roadway and the railroad tracks above. Debris was cleared by hand between each shot.

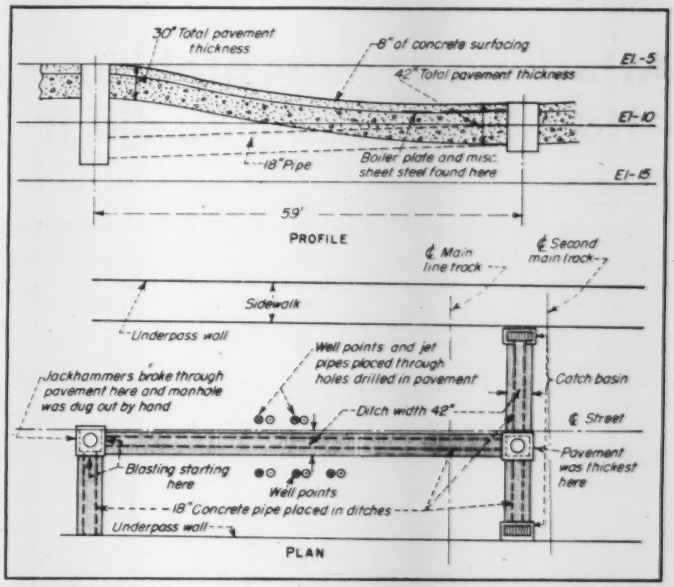
In a week's time, the 42-in.-wide ditch was thus cut through the concrete for a distance of 56 ft along the roadway and 30 ft across the roadway directly under the railroad crossing. The blasting was accomplished without cracking pavement outside the ditch area. There was no damage to the overpass and the tracks above were in continuous use.

As soon as the first excavation had been performed, water again appeared from below.

So, wellpoints were put down 2 ft from each side of the ditch line. At each wellpoint location, two holes were drilled through the concrete pavement. One hole was just big enough for the wellpoint and the other accommodated a water jet for placing the device. The wellpoints were slanted toward the bottom of the ditch, leaving sufficient cover at the top so they were undamaged by the blasting. These wellpoints were in service throughout and were undamaged by the blasting. When they were pulled, the holes were immediately filled with a fast-setting cement mortar.

Purpose of the contract was to provide better drainage for the underpass. New catch-basins will drain to a pump installation outside the underpass.

A. K. Fogg is city engineer of San Diego. Contractor on the job was Johnson-Western Co. of Coronado and San Pedro, Calif. Carl Copeland is construction engineer and district manager for the contractor. Troy D. Raymond, San Diego consulting engineer, helped plan the blasting.



PAVEMENT from 30 to 42 in. thick had to be blasted to install a new drainage system under a San Diego, Calif., grade separation structure. Contractor on original structure apparently installed thick concrete mat to combat water that threatened to fill excavation.

THIS is the Witherby St. underpass in San Diego after new drainage had been installed.

PARKING FIELD No. 1 is accessible to stores. Traffic moves in one direction in the lot. Entrances to the field are from main streets, exits lead to side streets. Flood lighting is from the tower. Pavements are sloped and curbed to guide stormwater to drains.

Attacking a traffic problem—How Freeport, N. Y., did it

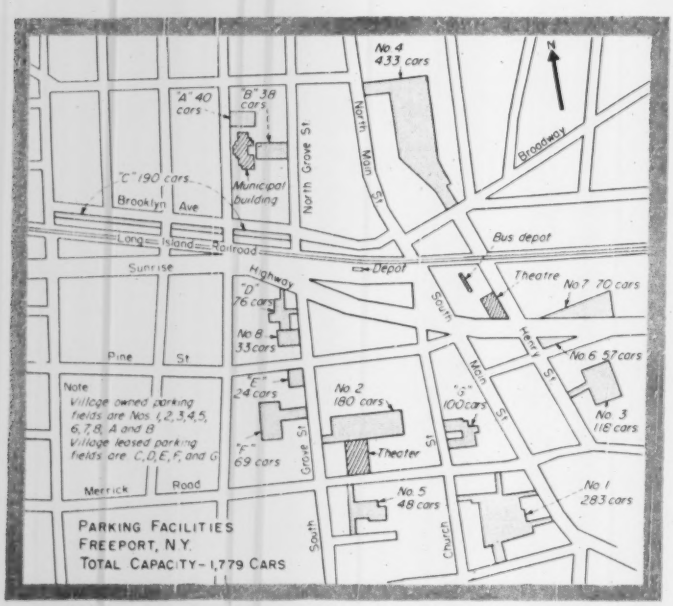
LIKE most other U. S. communities, Freeport, N. Y.—a major Long Island suburb of New York City (population 25,000) found that its business community and its services to residents were being strangled by ever increasing traffic congestion.

Two years ago, the village's Board of Trustees—under the effective guidance of Municipal Engineer Herbert M. Wood—decided to do something about it. They appropriated $593,000 for parking fields, got the municipal engineering department to work fast.

Now the program is nearly finished. After two years, the village now owns outright eight well-built parking lots, controls seven more fields, leased on a semi-permanent basis. Total parking capacity is 1,779.

All streets in the main business area have been studded with parking meters, (at a cost to the parker of five cents for one hour) but no charges are made in the parking lots. Overnight lot-parking is prohibited, but during daylight and evening hours, there's no time limit.

Although it's not quite finished, the program is a success: The merchants like it, the motorists are satisfied.



PARKING IS NO PROBLEM in Freeport, N. Y. Lots are scattered throughout the business section. No charge is made in the lots but streets are lined with parking meters.

• **No long walks**—Parking fields are scattered throughout the downtown business section. They're strung along the Long Island Railroad for convenience of New York commuters. They're next to theaters and the municipal building. They're squeezed in behind bustling stores. And they stretch through low-lying areas that would not make good building sites. In short, good use has been made of every available space.

• **Traffic flow**—Auto entrances to the fields are from main streets. Exits discharge to side streets. Some lots have combined entrances and exits. These always open to side streets. This routing tends to relieve—rather than tie up—traffic congestion on main arteries where use is the greatest.

Car movement within the lots is one-way. Generally it's counter-clockwise from the entrances, through the lot and between the parking lanes to the exits.

All turns, Wood says, have deliberately been made short radius. "It may sound out of date but it sure keeps the young jockeys from high-balling through the lots." With crossed fingers he proudly adds that there have been no accidents yet.

One-way traffic lanes are 16-ft wide. Two-way are 20 ft.

Routing of cars is by large white arrows that make for smooth traffic flow. They're painted on the pavement in the center of the lanes. They're at all turns as well as at the mid-point of long straight stretches. Arrows are 5 to 8 ft long and 12 in. wide.

Pedestrian traffic is channeled out

A COMBINED ENTRANCE AND EXIT has in-and-out auto lanes, sidewalks, guide rail and entrance sign. Stores, theaters and businesses are nearby.

of auto lanes as much as possible. This is done by malls between parking lanes and by walks along the edge of the fields and out of lots. All auto entrances are paralleled by one or two sidewalks. Some of the larger parking fields are served by separate sidewalks that lead directly into shopping areas.

Sidewalks are 4 to 6 ft wide. They're raised above the pavement and curbed.

• **Pack them in**—Cars are parked in general in double rows throughout the central portion of the lots and in single rows at the edges. Most of the parking spaces are at right angles to the line of movement; some are diagonal.

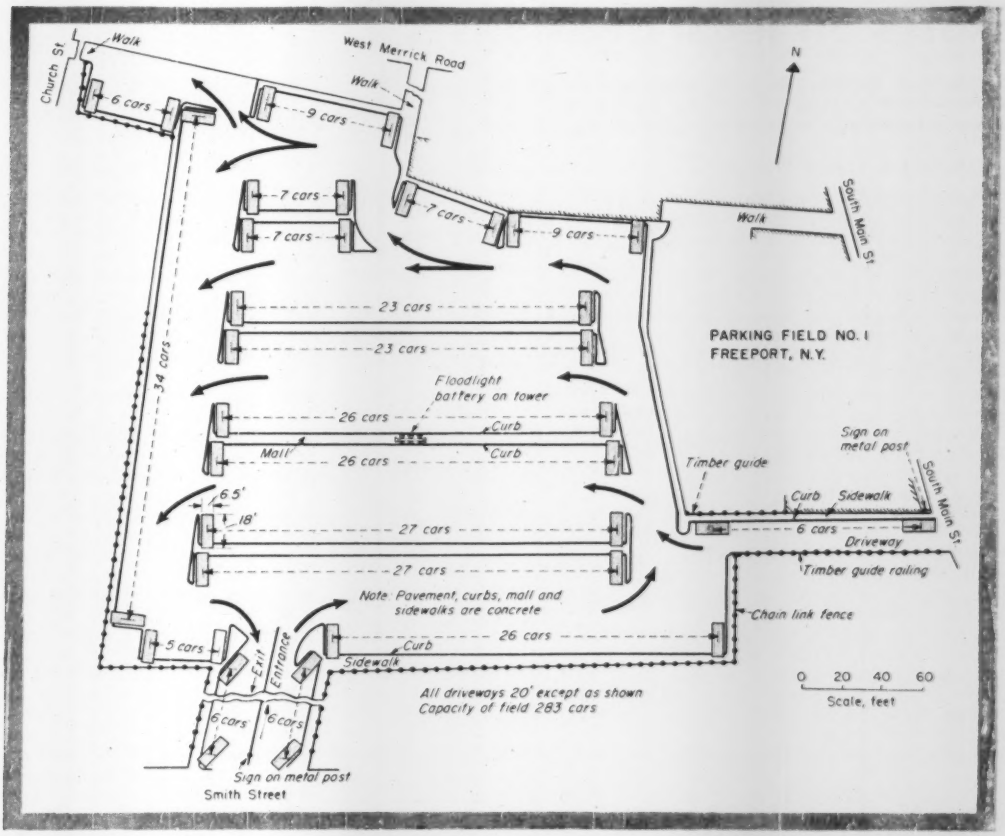
Parking spaces measure 18 x 8.5 ft. They're marked out in white paint.

• **Improvements are tops**—Municipally owned parking fields are paved with concrete. Pavements slope away from property lines to ample-capacity storm drains. Curbs along the upper edges make sure that private property will not be flooded during heavy rains.

Concrete malls and sidewalks are raised above the pavement by 6 in. concrete curbing.

Combined auto entrances and exits are separated by 3 to 6-ft malls sandwiched between 6 in. curbs. One-way as well as combined passages are also edged with curb to control flow of storm water on the property.

Ends of each row of parking spaces are terminated in concrete curbs that "tee" out from the malls. This pre-



PAVED WITH CONCRETE, the municipally owned parking fields pack cars into every available space. Arrow-directed traffic flows in one direction from entrance to exit. Sidewalks channel pedestrians out of auto lanes.

vents knicking and interlocking of cars on turns.

Floodlighting by batteries of tower-mounted lamps augmented by ornamental pedestal sidewalk lights illuminate the lots for night use.

Hydrants are spotted throughout the lots for fire protection and for washing down the pavements.

Each field is inclosed with chain-link fence. Driveways are edged either with this fencing or by timber guide railing.

Each parking field has an attendant who's on duty at all times. He keeps things moving by guiding parkers and looks after the lot to keep it clean an in tip-top shape. Attendants are paid by the village.

• **They help**—Freeport's parking fields have helped a great deal to relieve traffic congestion. The Village has a population of about 25,000 and is still growing rapidly.

There's also no doubt that business men and shoppers like the idea. Customers can get into the stores without too much delay. They don't have to carry their packages very far.

In fact, businessmen are broadcasting the fact that free parking is available. They've banded together to print maps showing the location of the parking lots. And each businessman is distributing these maps to his customers in packages and through the mail.

Wood sums up the experience this way: "Auto congestion is making it harder to do business in our cities. And the streets just can't hold all the cars that want to use them. We've proved that cities make a good investment when they buy parking fields. They get the cars off the streets. All that's needed is far-sighted municipal officials and a good plan of action. Some opposition is always run into but after the project's complete and its benefits become apparent, the citizens wonder why it wasn't done before."

Notes on legal decisions

Summaries of decisions relating to construction prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill)

Implied or Stated Waivers

A contractor will often sign a contract which provides that the other party shall not be bound by the same until it has been approved and signed by certain designated persons. The execution of a written contract in the particular manner provided in the contract is not always essential to it becoming a binding agreement. The specified manner of execution may be waived. A contract becomes binding where it is executed by one party, is forwarded to the other for execution or approval, is received and retained by the other party but never formally signed or approved by him, and both parties act in reliance upon it as if a valid contract existed.[1]

A waiver is a voluntary relinquishment of a right that one party has in his relations with another. Such waiver may be either "express" or implied. An express or stated waiver is governed by its own terms and is not often the occasion of dispute or litigation. An implied waiver exists where one party has pursued a course of conduct such as to indicate clearly that he recognizes the existence of a waiver. This is particularly true where the other party has been induced by such conduct to act upon the belief that there has been a waiver and has incurred trouble and expense thereby.[2] Once an individual has acted in this way he cannot expect a court to sustain his claim that a different state of affairs existed at the time in question. What lawyers call the doctrine of estoppel by conduct applies in such cases.[3]

The court in its opinion in another case indicated that if a person could waive his right by definite words and promises, why could he not do it by actions commonly said to "speak louder than words."[3]

Where a clause in the specifications forming part of a proposed contract provided that the contract was subject to the written approval of the government contracting officer, such contract requirement was waived by directing the contractor to proceed with the work.[4]

(1) J.P.C. Petroleum Corp. v Vulcan Steel Tank Corp., 118 F.2d 713.
(2) Dunkel Oil Corporation v Independent Oil & Gas Co., 70 F.2d 967.
(3) Marine Iron Works v Wiess, 148 F. 145.
(4) Power service Corporation v Joslin, 175 F.2d 698.

Settlement of Disputes

A subcontract contained the following provision as to the settlement of disputes:

"Except, as otherwise specifically provided in this subcontract, all disputes which may arise under this subcontract, and which are not disposed of by mutual agreement, shall be decided by a representative of the commission duly authorized to supervise and administer performance of the work hereunder, who shall reduce his decision to writing and mail a copy of such decision to the parties hereto at their addresses shown herein, such written decision then shall be final and conclusive. Pending decision of a dispute hereunder, the subcontractor shall diligently proceed with the performance of the work under this subcontract."

The court held[1] that this provision of the subcontract did not provide the exclusive method for settlement of a dispute as to the balance due the subcontractor after the completion of the work so as to bar an action to recover such balance. The decision of the court was based on that part of the contract provision that provided that: "Pending decision of a dispute hereunder, the subcontractor shall diligently proceed with the performance of the work under this subcontract."

The court in its opinion stated: "Obviously the subcontractor could not proceed with that which he had already completed, and the question of the balance due therefore is not such a 'dispute' as requires decision while the work is in progress, and of course could not be."

(1) Liberty Products Corp. v H. K. Ferguson Co., 90 F. Supp. 673.

Installment Payments

Where, under a contract, labor is to be performed and materials furnished by a contractor over a considerable period of time, involving large expenditures on his part, and payments are to be made through such period, as the work progresses, the covenant of the contractor to perform is dependent upon that of the other party to make the payments substantially at the times specified in the contract; and, in the absence of other provisions, or circumstances excusing it, failure to pay an installment when due will justify the contractor in refusing to complete the work."[1]

As a general rule, the time for the payment of installments in a construction contract is so material to the contract that a failure to pay the installment when due justifies the contractor in declining to complete the work. Where the contract calls for payments "on or about" the 15th of each month, the party paying is entitled to a reasonable time after the 15th in which to make the payment. What constitutes a reasonable time will depend upon all the facts and circumstances, bearing in mind that time of payment is a material stipulation of the contract.[2]

(1) Pickens County v National Surety Co., 13 F. 2d 758 and cases there cited.
(2) United States Fidelity & Guaranty Co. v Robert Grace Contracting Co., 263 F. 283.

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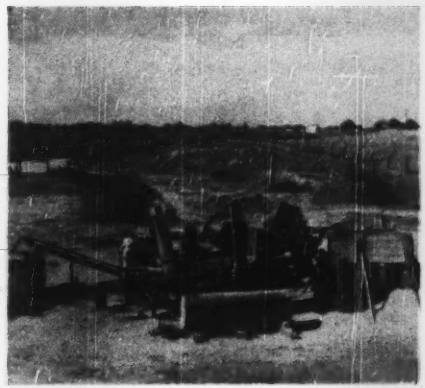
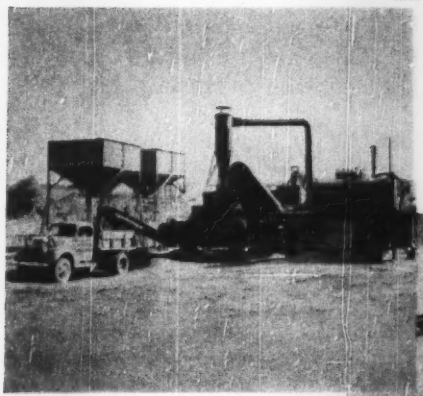
ON-THE-JOB VIEWS AND COST-SAVING IDEAS VOLUME 1—NUMBER 5

SMALL PLANT'S PROFITS BUILD BIGGER BUSINESS



Here's the original plant . . . 845213



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. . . that soon added two hoppers . . .

. . . and grew to 75 ton/hr. size. 810273

This is a typical example of progress through profit, made possible by modern B-G Bituminous Equipment.

In August, 1945, Glenn Johnson Construction Co., St. Louis Park, Minn., started in the paving business with a 10 to 25 T.P.H., B-G 840 Bituminous Mixer and 830 Dryer. Demand forced the addition of two 25 cu. yd. hoppers for surge storage of cold mix to accommodate the long line of trucks which were waiting for loads when the day's operations started. By the end of 1949, it was apparent that the smaller plant couldn't keep pace with expanding demand. So, out of profits from the original plant, they obtained a B-G 848 Normal Duty Mixer, 835 Dryer, and added an 852 Dust Collector to substantially increase mix capacity.

Now, with an average production capacity of over 75 tons per hour, they are ready to meet the heavy demands coming from towns and counties within a 50-mile radius.

Many contractors have started in the paving business with a Mixer alone in stabilization work, expanding on profit to add a B-G Paving Loader for Travel Plant operation; then adding a B-G Dryer for Single Aggregate Central Plant work; finally, through profit, adding Gradation Control Unit, Dust Collector, etc., for Continuous Flow production of the highest-type mixes.

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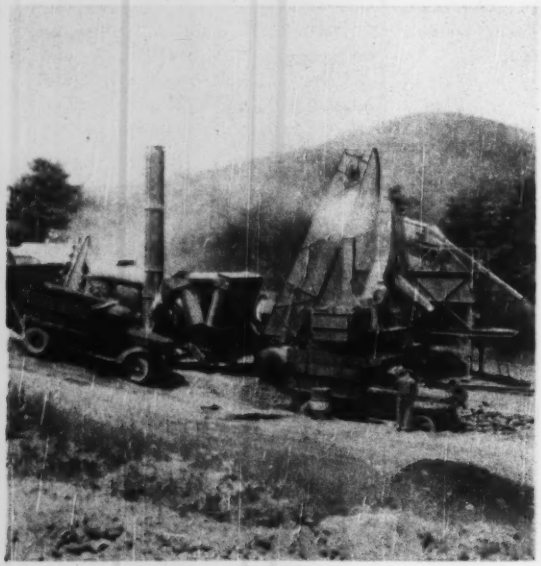
MAINTENANCE PLANT PROVES VERSATILITY

Versatility of the modern 35-ton per hour B-G 840-839 Bituminous Mixing Plant has been well proved by the Komatz Construction Company, prominent St. Peter, Minnesota, contractor. Starting early in the season, they successfully bid on a variety of jobs — maintenance work, driveways, parking lots, tennis courts, and small road building projects. The ability to quickly erect a plant that handles a variety of mixes, together with extreme portability, enabled the company recently to place 500 tons of bituminous material for a Minnesota college, and immediately start on two street paving contracts. On these jobs, they mixed 4500 tons of black top for streets in the communities of Gregory, Minnesota, and Brookings, South Dakota. With the Model 839 B-G Dryer Unit in this plant, Komatz is able to start operations earlier in the spring and continue profitably operating late into the fall.

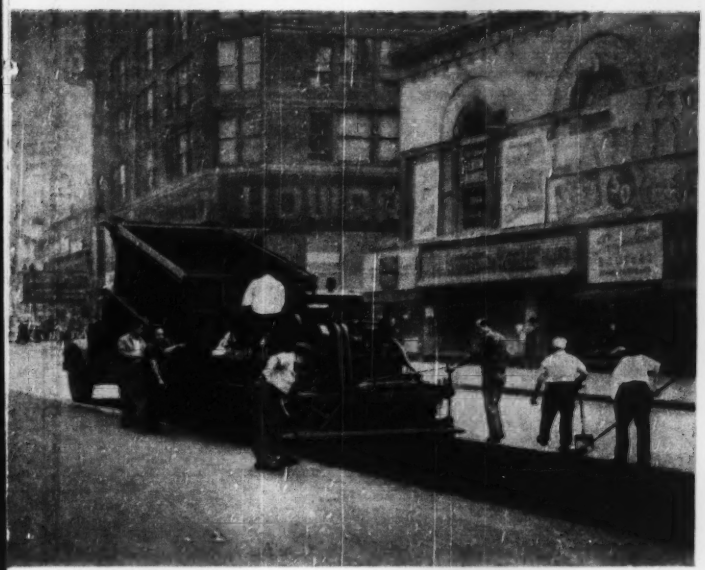


B-G BITUMINOUS PAVING TEAM MIXES, PLACES 28,000 TONS

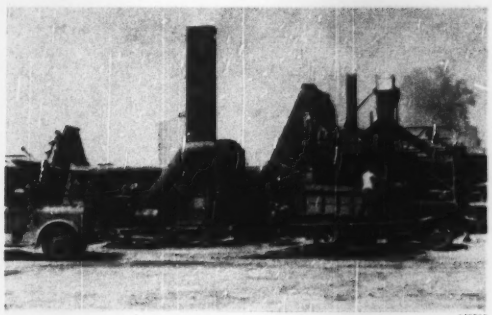
Don Stabler recently used his B-G Bituminous paving team—848 High-Type Mixing Plant and two B-G 879A Tamping-Leveling Finishers—to good advantage on a 12-mile road contract between Port Matilda and Philipsburg, Pennsylvania. His 848 Bituminous Mixing Plant kept trucks shuttling back and forth to supply the two B-G Finishers working continuously in tandem to place two eleven-foot strips (often on steep grades), a total distance of 12 miles. Specifications called for a type "I" hot mix, 3-bin separation using penetration asphalt cement, laid in two courses—a binder course and a wearing course. Trucks were kept busy supplying the Mixer with the two grades of aggregate which came from two different quarries. The Mixer consumed about four tank-trucks of asphalt a day, and produced an average of 115 tons of high-grade hot mix bituminous concrete per hour.

for full, fast information on any equipment

FINISHER STARS ON GREAT WHITE WAY

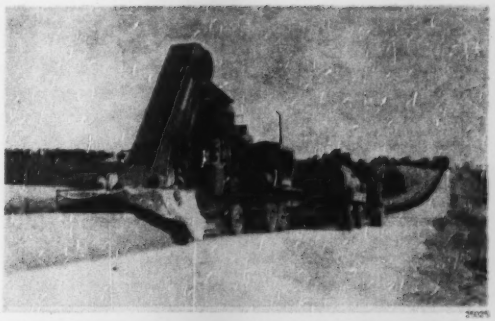


The new B-G laid surface on New York's famous Broadway is the work of a great performer. To assure a record run for their Broadway production, Frank Mascali & Son laid the 3" sheet asphalt course with B-G Model 879A Finishers. Although the entire length of Broadway from 42nd Street to Columbus Circle was resurfaced, traffic was always free to pass. The paving strip itself was ready for use a few hours after being laid with the finisher. Whether it's a $180,000 project on one of the world's busiest streets or a job on a narrow mountain road, B-G Tamping-Leveling Finishers have proved that they can lay a smooth, durable surface with a minimum of traffic interruption.



ROAD COMPANY ON THE MOVE

Quick erection and easy portability of Mehlan & Giertz's B-G medium duty—60 tons per hour range—Bituminous Mixing Plant allow them to profitably work a large area surrounding their home base of Elgin, Illinois. Early in the season the Model 845 Mixer-2-Bin Gradation Control and the Model 835 Dryer and the 852 Dust Collector are on the move to some county or city where they are quickly set up to supply material to be used for new roads and streets, to fill city and county asphalt mix requirements for maintenance needs, or materials for new driveways, parking lots, storage area, tennis courts, etc. Within hours after the completion of a job, they are on their way to another location, setting up near an aggregate supply. A unique feature of a recent resurfacing job was the placing of asphaltic type "I" concrete in windrows on an old brick street. The mix was bladed over the bricks, laying of the final mat with their B-G Finisher.



"STAGE CONSTRUCTION" STAR

Inland Construction Company, Omaha, Nebraska, is one of the many subscribers to the practice of using the Barber-Greene Travel Plant for all phases of "road mix" highway construction. Many states are exponents of stage construction methods—building stabilized, or macadam "secondary" or farm-to-market roads into smooth, wide, modern all-weather highways. Beginning with the mixing of the stabilized base material, followed by preparation of the temporary wearing and riding surface through the actual mixing of the final "road-mix" surface—the versatile B-G Travel Plant handles all stages at high capacity.

The Travel Plant can be applied for normal maintenance work on bituminous roads—to retread the entire mat or to "skip" patch sections of the road. When old deteriorated surfaces are to be remixed or renewed, as pictured above on a 24-mile stretch of road between Lyons and Winnebago, Nebraska, the versatile B-G Travel Plant "fits." It offers the contractor or county a tool that is not limited in use, and however used, contributes to better roads.

on these pages--see your B-G Distributor ⟶

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A. R. Amos Company
713 Commercial Trust Bldg.
Tel. Rittenhouse 6-8141

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Houston 11
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Wichita Falls
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156 West 4th, So.
Tel. 4-0473

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Tel. 3-3538
in Roanoke 7
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Tel. 6271

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DEVELOPMENTS ABROAD

Mexico completes Morelos Dam

The $7,000,000 Morelos Dam on the lower Colorado River has been inaugurated officially and placed in operation by Mexico.

This diversion dam which is the Mexican counterpart of the All-American Canal on the United States side, is expected to irrigate about 500,000 acres of land in the territory of Lower California.

Building of the project followed many years of international discussion of Mexico's water rights on the Colorado River. Originally, irrigation water for the Imperial Valley in California was taken from the Colorado River on the United States side, run through a canal on the Mexican side and then returned northward to the Imperial Valley. (ENR Jan. 25, 1945, p. 93)

In 1935 the All-American Canal replaced that system and the Mexicans used the old canal on their side strictly for Mexican purposes, but only by the device of introducing water diverted on the United States side.

Under the International Water Agreement of 1944, Mexico had until Nov. 8, 1950, to complete a dam on its own side of the border in order to share under the stipulated water distribution.

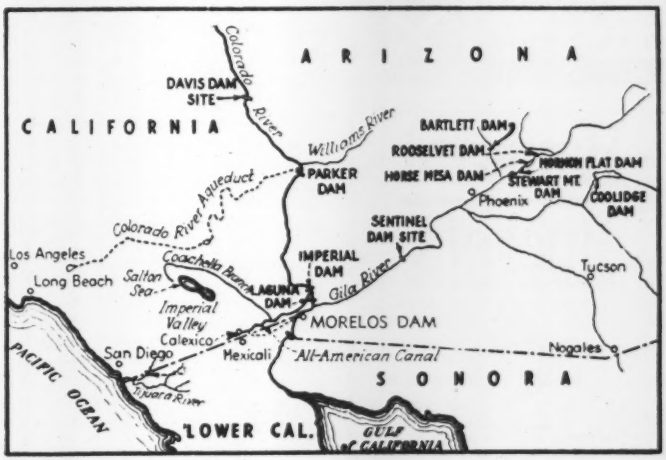
Now Mexico has beaten this deadline by a matter of weeks.

The construction of the dam was done by Morrison-Knudsen de Mexico, a subsidiary of the U. S. firm.

Since the United States has a number of storage dams on the Colorado River, it was not necessary for Mexico to build a storage dam, and so Morelos is of the purely diversionary type.

The dam is of concrete and 105 ft high. It consists of a diversion structure thrown across the river with 20 steel radial gates that can be operated to raise the level of the river sufficiently to deliver the desired quantity of water.

The intake section, forming an "L"



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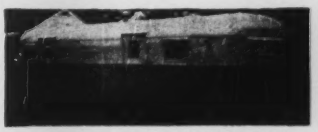

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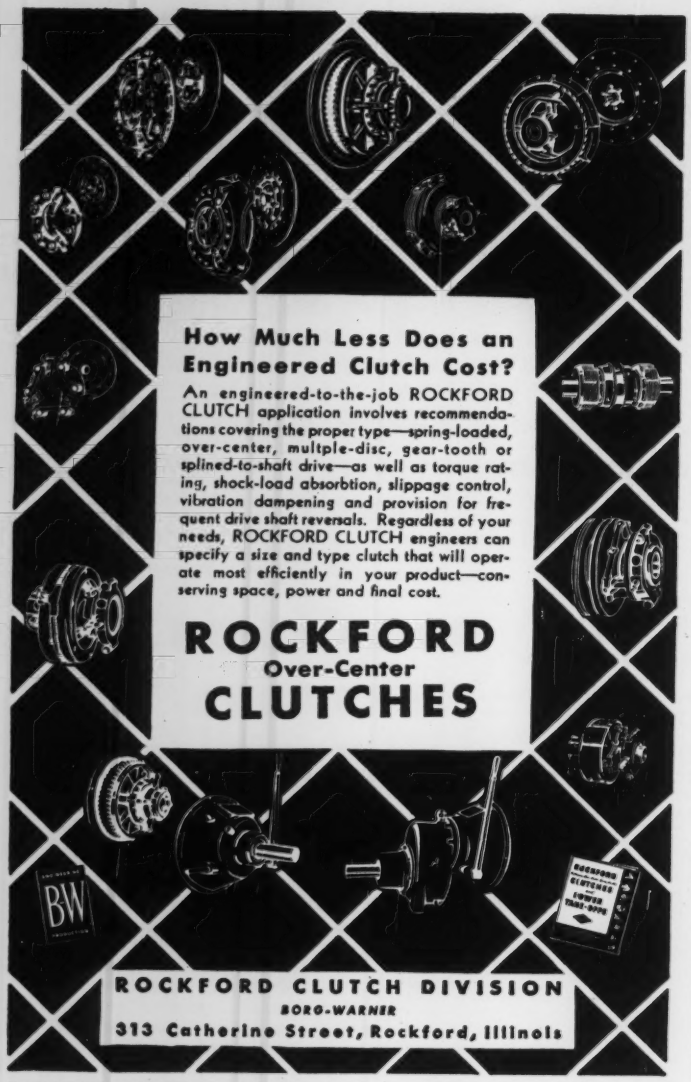
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with the main dam, has 12 radial gates, through which can be handled a flow of 989 cu ft of water per second, while the diversion dam can permit a flow of 353,145 cu ft a second.

The main problem in the design of the dam was to obtain a solid foundation upon the poor limestone rock that underlies the entire area to a great depth. It took two years to construct the dam.

In inaugurating Morelos Dam, President Miguel Aleman of Mexico said that the project should allow widespread development of the entire Mexicali Valley, with large new areas to be devoted to the growing of cotton, corn, wheat, alfalfa and olives.

Foreign Briefs

Sanitary engineers—Representing Marshall Plan countries, 25 sanitary engineers have begun studies at Washington which will result in better techniques in disposal of sewage and garbage and improved water supply methods in western Europe. Sponsored by the Organization for European Economic Cooperation, the group will spend two months in this country and will visit about 15 American cities to study such operations in various sections.

Aid for Iran—The Export-Import Bank has authorized a credit of $25,000,000 in favor of the government of Iran. Individual projects will be approved from time to time for development works in highways, electric power and agriculture. The credit will be used to finance purchases of United States equipment, materials and technical services needed for projects in those categories.

No nationalization of building—In England both the government and the Labor party have come out strongly against nationalization of the building industry.

Land reclamation—Greece and Turkey, with the support of the Economic Cooperation Administration, are planning a large-scale program of land reclamation and flood control along the banks of the River Eros, which roughly marks the border between the two countries. Greek, Turkish and American experts met recently in Istanbul for the second time this year to exchange views on this project.

Lempa work starts—Construction has now begun on the $19 million Lempa river hydroelectric and irrigation project that will furnish 30,000 kw of power, and ultimately 75,000, for the booming republic of El Salvador in Central America.

MUNICIPAL AFFAIRS

PITTSBURGH'S "GOLDEN TRIANGLE"—This is the main business district of the metropolis of steel. The Point Park project area is at the point where the confluence of the Allegheny and Monongahela rivers forms the Ohio.

Pittsburgh, capital of steel and America's largest inland river port

Among the great construction projects now under way at Pittsburgh, Pa., are these:

Five skyscrapers to cost $40,000,000 (three of them in the Point Park area, where 36 acres are being reclaimed); $1,000,000,000 for manufacturing plant expansion; the 1,500-acre Greater Pittsburgh airport, costing $22,000,000; the $50,000,000 Penn-Lincoln Parkway, a high-speed thoroughfare from the Pennsylvania Turnpike East to the heart of Pittsburgh; a large sewage disposal plant; the $34,000,000 Conemaugh Dam; the $25,000,000 University of Pittsburgh Medical center, including 8 hospitals.

In addition, plans are being completed for a $1,000,000 civic theater and for a $1,000,000 amphitheater.

The Greater Pittsburgh area has a higher percentage of home-owners than any other metropolitan center of comparable size.

Many city surveys made

Boston, Mass.—Charles A. Maguire and Associates, consulting engineers, have been awarded a $58,000 contract to make a survey of the 720-mile highway system of Boston in preparation for construction of a master highway program. Public Works Commissioner George C. Hyland requested that Mayor John B. Hynes award the contract without publicly advertising for bids because of his complete confidence in the ability of the firm. The mayor also has appointed a joint board to cooperate in developing the master plan. Hyland will serve as chairman and the board will consist of the chairmen of the city planning board, the traffic commission, the street commission and the park commission. Maguire and Associates must submit an interim report before Dec. 15, and a final report before March 1, 1951.

Warren, Ohio—City has employed Michael Baker, Inc., of Rochester, Pa., to make a survey to determine origin and destination of traffic on city streets, the first step in preparing a master plan so as to obtain more federal and state aid for street improvement projects.

Lincoln, Ill.—Crawford, Murphy and Tilly, consulting engineers, Springfield, Ill., have been engaged to make a sewage system study for Lincoln, Ill.

Buffalo, N. Y.—The local port commission has approved tentatively a bid of $38,000 by the Knappen Tippetts Abbett Engineering Co. of New York for an engineering and economic study of port, parking and airport facilities of the city for submission to the state legislature by Feb. 15 next. The commission directed Corporation Counsel Fred C. Maloney and Richard Tempieton, executive secretary, to negotiate a contract with the firm which will consider the need for a port authority. The study will also include such matters as an analysis of past commerce through the port, a survey of existing port facilities, a study of rates and charges, management and administration, and an engineering and economic study of the airport and analysis of the parking needs of the city.

Louisville, Ky.—A study that may lead to a new master plan for Louisville and Jefferson County zoning has been begun by Aaron Horwitz, Cleveland consultant, who has been employed by the City-County Planning and Zoning Commission. He is chief city planner for Cleveland and consultant for several other cities in different parts of the country as well as the state of Minnesota.

North Carolina—The highway department is expanding its traffic engineer's staff in order to aid towns and cities in making traffic studies. Many municipalities lack funds for making studies themselves, and few need full-time engineers. An assistant traffic engineer will be employed. His duties will be almost entirely to work within cities and towns in various sections of the state.

Jamestown, N. Y.—A comprehensive plan has been prepared to solve the local parking problem and has been presented to Mayor Samuel A. Stroth. It is said that under the plan not only could parking space be provided for 2,000 more motorists daily, but the city's parking revenue could be nearly doubled to get an estimated $85,000 annually. The report was submitted by the mayor's 7-man parking committee after an intensive study of three months.

Dayton, Ohio—The city commission has been asked to study the feasibility of a garbage grinder system. Three possible methods of solving the problem were suggested by City Water Department Director Lloyd Huffman: Require all dwelling units to have a satisfactory grinder in the kitchen plumbing so that garbage can be safely flushed to the sanitary sewage system; install central grinding stations; or build an additional incinerator. Huffman said the city would save about $300,000 a year if kitchen garbage grinders were used.

Anderson, Ind.—A committee from the city council has been named to study plans for a water plant survey. A preliminary check on the city's water facilities has been made by Chas. W. Cole and Sons, South Bend, Ind., engineers. Their principal recommendations for the present include additional wells, larger mains, and two large storage tanks.

MEN AND JOBS

George R. Halton and **Ray O. Maurseth** are engineering consultants in soils and foundations for highways, airports, tanks, structures and buildings at 4508 Crenshaw Blvd., Los Angeles 43, Calif., and 1060 Broad St., Newark 2, N. J.

Arthur Hammond has beenn named superintendent of the Montpelier, Ohio, municipal waterworks.

Frederick T. Aschman has been appointed executive director of the Chicago Plan Commission. He formerly served the Cook County Housing Authority, Chicago, in a similar capacity.

John G. Vaughan, Jr., has joined L. R. Solomon & Associates and Josef Marion Gutmayer, architects and engineers, Chicago, as housing and planning consultant. The firm will expand its city planning and redevelopment activities. Vaughan formerly was director of development for the Chicago Housing Authority. During the war he served as rent director for Manhattan. He organized and directed New York's Manhattanville housing and planning committee.

Stone & Webster, Inc. has formed a Canadian subsidiary, Stone & Webster Canada Limited, with offices at 50 King Street West, Toronto, Ont.

Robert E. Killeen, Detroit, Mich., formerly sewage and water filtration engineer with Pate & Hirn, has joined William A. DaLee, Inc., and will specialize on sewage and sanitary problems for the sales department. Mr. Killeen was at one time associated with the Michigan Department of Health.

Alfred T. Krook, previously district manager of the Stone & Webster Engineering Corp., for the Southwestern area, Houston, Tex., has been named president of the new company. **John W. McKee** of Toronto is chairman of the board of directors upon which are serving **Whitney Stone** and **Philip B. Scott** of New York, as well as these Canadians: **G. Peter Campbell,** and **William Eric Phillips,** of Toronto and **Hartland De M. Molson,** of Montreal.

Maj. Lenox R. Lohr, who is organizing preparations for the Centennial of Engineering in Chicago in 1952, has been appointed Illinois state civil defense chief by Governor Stevenson. He is director of the Museum of Science and Industry and served as an Army Engineer officer from 1917 to 1929.

H. D. Rouse, who has been in construction work for 26 years, is in Martinsville, Va., as field project manager in charge of building the addition to the Du Pont Company's nylon yarn plant. Mr. Rouse received a degree in civil engineering at Cooper Union and did graduate work at Brooklyn Polytechnic Institute. For 20 years before he joined Du Pont in 1944, he was a construction engineer on public works in New York and Brooklyn, and also worked in the British West Indies and in Brazil.

Kenneth Heagy, chief of the Engineering Division of the Galveston district, Corps of Engineers, is a C.E. graduate of Purdue University. Following graduation, he joined the Corps of Engineers and was assigned to Sault Ste. Marie, Mich., 1929-1932. Then he was transferred to the Detroit district and remained there until 1938, when he was transferred to Galveston. Commissioned in the Corps of Engineers in 1942, he served as executive officer of the Galveston district from July, 1943, until his discharge as a lieutenant colonel, Corps of Engineers on Dec. 31, 1946.

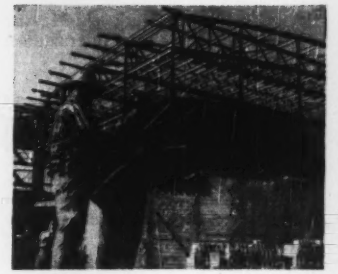
A.I.S.C. officers—At its recent 4-day convention at Houston, Tex., the above members of the American Institute of Steel Construction were prominent. They are: seated, N. R. Paterson, Tulsa, Okla., retiring president; R. D. Wood, Mississippi Valley Structural Steel Co., Chicago, president; standing, J. E. Jackson, Pittsburgh-Des Moines Steel Co., first vice-president; and L. Abbett Post, New York, executive vice-president.

Richard G. Fencl, a civil engineer, has been appointed traffic engineer of the Chicago Park District. He succeeds **Victor Hofer,** on leave of absence to work on traffic problems at O'Hare airport. Fencl, who is a graduate of Armour Institute, joined the engineering department in 1925.

C. J. Kray, structural engineer, for several years with Fay, Spofford & Thorndike, consulting engineers in Boston, Mass., has opened an engineering office in the Old South Building, Boston. He will specialize in structural design and supervision of construction in structural steel, reinforced concrete, timber and foundations.

W. L. Cassels, engineer of Rockcliffe Park, Ont., has resigned.

Eustis Engineering Co., consulting foundation engineers, has merged its New Orleans and Vicksburg offices at 3645 Airline Highway, New Orleans 20, La.



Charles Anderson, left, general superintendent, and Millard Long, superintendent, of Caldwell-Scott Engineering & Construction, look over plans for Dade County's new $2,000,000 auditorium now under construction in Miami, Fla.

Lt. Col. Geo. A. Finley, Corps of Engineers, who was executive officer of the Portland, Ore. district, has been made district Army engineer at Rock Island, Ill.

Samuel Frothingham has been appointed to the engineering staff of the William L. Crow Construction Co. A graduate engineer from Harvard University and a licensed professional engineer, previously he was associated with Frothingham and Smith Inc., Johnston Livingston Co. and the National Lock Washer Co. During World War II, he served with the United States Navy in Washington as head of the Industrial Engineering Section, Bureau of Ships. With the Crow Company, Mr. Frothingham will be engineer in charge of all West Coast projects.

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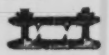

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OBITUARY

George Poole, 68, supervising ordnance engineer at the Naval Gun Factory, died Nov. 3 in Washington, D. C. Mr. Poole began working as apprentice in 1898 and rose to supervising ordnance engineer. In 1912 he was graduated in engineering from George Washington University.

Frank O'Connell, 60, a retired member of the firm of Hart & Early, subway builders, died in New York City Nov. 9. Shortly after graduation from Manhattan College in 1909, Mr. O'Connell became a member of the engineering force of New York's rapid transit system. He became supervisor of construction of the William Street subway in 1914. During the first world war he served with the Air Force Engineers Corps overseas.

H. E. Bates, 66, of Sackville, N. B., civil engineer, died at Halifax, N. S. Nov. 3, as he worked on plans for a bridge across Halifax harbor. Born at Haverhill, Mass., he was educated at Mount Allison University, Sackville, N. B.; Acadia University, Wolfville, N. S., and McGill University, Montreal, where he was graduated in civil engineering in 1908. After war service he was with the Consolidated Paper Corp. until 1949, when he located at Sackville as a consulting engineer. Lately he had worked not only on plans for the Halifax bridge but also for a bridge over Canso Strait to connect the mainland of Nova Scotia and Cape Breton Island.

Albert L. Wothan, 63, director of the engineering division of the Bureau of Indian Affairs, died in Portland, Ore., Nov. 3. He was educated at the University of Michigan and St. Louis University. After war service he joined the Indian bureau in 1919 to work on the survey for the Headgate Rock Dam at Parker, Ariz. He also helped in the development of a large irrigation project near the Coolidge Dam in Arizona. In World War II he was sent by the State Department on a special mission to Arabia.

V. R. Smitham, 57, former city manager of Dallas, Tex., died Oct. 29. Many of the plans for the rapid postwar expansion of Dallas were prepared by him. He learned the construction business with the M-K-T Railroad, advancing from construction laborer to assistant engineer. From Texas A. and M. College, he received a Master of Science degree in civil engineering in 1926. He served as assistant county highway engineer of the Texas counties of Collin and Rockwell. He was a former president of the International City Managers' Association.

John Calvin Oakes, 79, retired Army Engineers Corps officer and a former member of the Board of Rivers and Harbors, died Nov. 12 in Washington, D. C. He first went to Washington in 1903 when he was appointed to the Army's General Staff. The next year he served as secretary of the Advisory Board of Consulting Engineers for the Panama Canal, a board of engineering experts appointed by President Theodore Roosevelt to decide the type of canal to be built in Panama. Since his retirement in 1927 he had lived in Charleston, S. C. He was graduated from West Point in 1897. In World War I, he was assigned to the 113th Engineers of the 38th Division which he organized and trained at Camp Shelby, Miss. Subsequently he was in charge of the 5th Engineers and took the regiment to France. He was division engineer of the 7th Division and with his regiment took part in the St. Mihiel offensive and battle at Metz.

Capt. George L. Flower, 82, engineer and retired chief of the United States Coast and Geodetic Survey's nautical chart section and a pioneer hydrographic surveyor of Alaska, died Nov. 13 in Washington, D. C. Captain Flower, who retired in 1938 after 42 years' service with the survey, joined the service in 1896 as a hydrographic and geodetic engineer and was assigned to the Alaskan coasts. He was transferred from the field service in 1904 to take the position which he held until his retirement. He returned to the Survey in October, 1942.

Mehmet Emin Ozgor, 31, a Turkish graduate student in civil engineering, University of Illinois, died Nov. 12 at Urbana, Ill. His home was at Izmir, Turkey. He received the degree of Bachelor of Science in civil engineering, University of Illinois, in 1949, and was completing work in that field for his master's degree.

Robert Melville Smith, 64, former deputy minister of highways for Ontario, died at Toronto Nov. 16. He played an important part in the building of the Alaska Highway. He was a vivil engineering graduate of Queen's University, Kingston, Ont., became Ontario deputy minister of highways in 1926 and was interested in development of northern sections of the province. He retired from the Ontario post in 1942 to go on the Alaska Highway development. He was awarded the Canadian Engineering Institute Julian C. Smith medal "for achievement in the development of Canada."

MEETINGS

C. Forrest Tefft, Columbus, Ohio, president of the Claycraft Co., is the new president of the Structural Clay Products Institute, succeeding W. J. Goodwin, Jr., Des Moines, Iowa, who was president for two years. For three years Mr. Tefft was president of the Ohio Ceramic Industries Association.

The Engineering and Public Works section of the League of Wisconsin Municipalities elected Robert J. Poss, Marinette City engineer, chairman, and Edward Duszynski, Cudahy director of public works, secretary.

The Oak Ridge, Tenn., Sub-section, ASCE, has elected as its president for the calendar year 1951 Cass A. Budnik, project manager for Maxon Construction Co., Inc., on its work at Oak Ridge, Harold E. Butcher, now with the Oak Ridge National Laboratory, is the newly elected secretary.

Willard J. Turnbull, Vicksburg, was elected president of the Mid South Section of the American Society of Civil Engineers succeeding H. S. Gladfelter, Memphis. Other officers: Sydney W. Chandler, Jackson, vice-president, and H. G. Dewey, Jackson, renamed secretary-treasurer. New directors are Ed Madden of Little Rock and F. R. Brown of Vicksburg.

CALENDAR

Congress, American Municipal Association, Hotel Statler, Washington, D. C., Dec. 4-6.

American Association of State Highway Officials, Miami, Fla., Dec. 4-7.

County Engineers of Iowa, Iowa State College, Ames, Dec. 6-8.

Building Industry Employers of N. Y. State, BTEA Clubrooms, 2 Park Ave., New York City, Dec. 14-16.

Highway Research Board, National Research Council, annual meeting, Washington, D. C., Jan. 8-12.

American Society of Photogrammetry, annual meeting, Shoreham Hotel, Washington, D. C., Jan. 10-12.

N. Y. Section AWWA, luncheon meeting, Park-Sheraton Hotel, New York City, Jan. 16.

National Association of Home Builders, annual convention and exposition, Stevens and Congress Hotels, Chicago, Ill., Jan. 21-25.

Conference, Wisconsin County Highway Commissioners and County Highway Committee Members Association, Milwaukee, Wis., Jan. 23-25.

Third California Conference on Street and Highway Problems, University of California, Berkeley, Jan. 24-26.

Associated Equipment Distributors, annual meeting, Stevens Hotel, Chicago, Ill., Jan. 28-Feb. 1.

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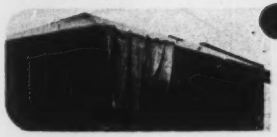

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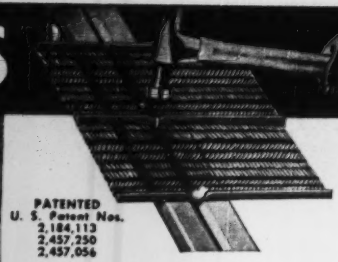

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UNIT PRICES BID BY CONTRACTORS

Delaware River Bridge, new link for Pa. and N. J.

A combined bid on construction of both substructure and superstructure was low at $2,136,298 for the Delaware River Bridge between Morrisville, Pa., and Trenton, N. J. This bid was 7% below the next to low bid and 33% below the high. J. E. Greiner Co., Baltimore, Md., are the consulting engineers.

The nine firms who submitted proposals could bid on Alternate A, substructure, Alternate B, superstructure or Alternate C, substructure and superstructure combined. There were six proposals on A, two on B and seven on C, when the Delaware River Joint Toll Bridge Commission took bids Aug. 31, 1950.

The work includes removing a portion of the existing sea wall along John Fitch Way in Trenton, a Trenton abutment, 11 river piers and a Morrisville abutment. The abutments and piers are of reinforced concrete, the piers being faced with granite masonry. The superstructure will have 12 skewed and square deck plate girder spans with reinforced concrete deck. Each span will consist of 8 girders. The approaches are not included in this contract. Neither is an administration building.

Vehicular traffic must be maintained in two directions on John Fitch Way in Trenton and on Delmorr Ave. and Moreau St. in Morrisville with a minimum vertical clearance of 14 feet. Railroad traffic on the siding along Delmorr Ave. also must be maintained with a minimum vertical clearance of 22 feet and horizontal clearance of 8 feet from the center line of track.

The constant cement factor for Class A concrete shall be 6.5 bags of cement per cubic yard and for Class B concrete, 5.0 bags per cubic yard.

The contractor must furnish all plant, labor, materials and equipment. He must complete the work in 380 days or pay $300 a day liquidated damages.

Wage rates prevailing in the Trenton area are: ironworkers, $3.00 an hour; cement finishers, $3.10; carpenters, $2.65; laborers, $1.80.

Bidders on Alternate C included:

1 Dravo Corp., Pittsburgh, (contract)	$2,136,298 36
2 Kaufman Const. Co., Inc., Philadelphia	2,288,354 24
7 Johnson, Drake and Piper, Inc., New York, N. Y.	2,844,346 70

Items	Quantity	Unit prices 1	2
Rem exist conc	cy 111	$10 00	$35 00
Dry excav	cy 2,911	8 00	6 00
Wet excav	cy 8,598	20 00	32 00
Rock excav	cy 989	30 00	45 00
Prep fndn	sy 2,168	2 00	3 00
Pile fndn load tests	ea 3	2,000	1,000
Steel bear piles furnished	lf 4,880	4 00	6 00
driven	lf 4,440	2 00	3 00
Substruct conc			
Class A	cy 2,265	70 00	50 00
Class B	cy 9,329	38 00	30 00
Granite facing	cy 1,909	175 00	230 00
Substruct reinf st bars	lb 393,054	.15	.14
Dampproofing	sy 922	1 50	1 00
Porous wall backfill	cy 240	20 00	5 00
Resident engr facilities	ls	10,000	8,000
Struc st	lb 4,516,820	.148	.16
Handrail	lf 2,367	8 50	9 00
Superstruct			
Cl A conc	cy 2,981	63 00	64 00
Reinf st	lb 485,696	.15	.13

Texline, Tex., gets sanitary sewer system

Unit prices on vitrified tile sewers for Texline, Tex., vary from 79 cents to $1.29 a foot according to diameter of pipe and depth of cut. Of the four Texas and one New Mexico contractors who entered bids on the sewer system and sewage treatment plant, B. R. Gardiner, of Amarillo, was low with $29,888, 4.3% below the second low bid and 34.3% below the high. Roberts and Merriman, of Pampa, Tex., are consulting engineers.

The contractor started work Oct. 20, 1950, and must complete the job in 150 days. He must furnish all materials, equipment and labor.

The job includes a 25,000 gallon capacity Imhoff tank, 13'x14'x19' deep, on which the lump sum low bid was $8399. The site is within ½ mile of a railhead and near the highway.

Line work includes some rock excavation but no separate payment will be made for rock.

The line work on the sewer system includes some rock excavation but no separate payment will be made for it.

Minimum wages to be paid are: skilled labor, $1.50-2.00 an hour; semi-skilled, $1.00-1.50; unskilled, $1.00.

Bidders included:

1 B. R. Gardner, Amarillo (Contract)	$29,888 40
2 Western Const. Co., Hobbs, N. M.	31,167 10
5 Park-Owen Const. Co, Pampa	40,131 61

Items	Quantity	Unit prices 1	2
Vit tile 8" 2'-3' cut	lf 350	$1 15	$1 20
8" 3'-4' cut	lf 1,330	1 17	1 20
8" 4'-5' cut	lf 1,220	1 24	1 20
8" 5'-6' cut	lf 955	1 29	1 20
6" 2'-3' cut	lf 705	.79	80
6" 3'-4' cut	lf 4,270	81	80
6" 4'-5' cut	lf 8,527	84	80
6" 5'-6' cut	lf 1,580	89	80
6" 6'-7' cut	lf 70	99	80
Manholes, Type B			
4' diam, 4' deep	ea 14	85 00	100 00
Extra vert foot	vf 11	15 00	15 00
Type A, 3' dia, less than 4' deep	ea 5	79 50	100 00
Std cleanouts	ea 7	35 00	30 00
6"x6" vit tile wyes	ea 100	2 00	2 00
8"x6"	ea 5	4 00	3 50
Pav cut (asph on caliche bse repl with conc & asph)	sy 85	5 00	7 00
Sidewalk (cut or tunl)	lf 64	2 00	2 00
6" cast iron	lf 288	3 50	3 00
Conc for pipe protect	cy 4	30 00	25 00
Sewage treat plant	ls	8,398.72	10,000

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

Tex., Port Arthur—B.A. 12/12—City, water treatment plant, Contr. No. 711-7a-Pa-4190. $500,000. Plans deposit $25. Freese & Nichols & Turner, 2111 Natl. Standard Bldg., Houston, engrs. CD 12/28/49.

Fla., Lake City—B.A. 12/20—City, 2 deep wells, 3 pump houses, 7,260 ft. water lines. Russell & Axon, P.O. Box 1431, Daytona Beach, engrs.

LOW BIDDERS

Calif., Oakland—East Bay Municipal Utility Dist., 512 16 St., Nov. 10, addnl. lining in Pardee, Lafayette and Claremont Tunnels and constr. Lafayette Aqueduct Control Works, Spec. 84, from Elmer J. Freethy, 1432 Karney St., El Cerrito. **$199,939.**

CONTRACTS AWARDED

Que., Mont Carmel—Municipality, A. Crossette, secy., installing WW, incl. artesian wells, dam, piping, etc. to R. J. Levesque, 479 Ste. Julie St., Three Rivers. Approx. $50,000. R. Morrissette, 15 Longval St., Cap de la Madeleine, engr.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Ga., Atlanta—B.A. 12/6—Fulton Co., Court House, outfall sewer Projs. S-33 and S-65 and lateral sewers in Carmsin Dr., Stratford Rd. and Peachtree Dunwoody Rd. Plans deposit $15.

La., Houma—B.A. 12/13—Terrebonne Parish Police Jury, sanitary sewerage sys., 3½ mi. 8- to 15-in. vitr. clay sewer pipe in Crescent Park Subdivision. Plans deposit $20. De Fraites Assoc., Houma, engrs. CD 6/2.

Tex., San Marcos—B.A. 12/15—City, sewage disposal plant. $150,000. Frank T. Drought, 117 W. Pecan St., San Antonio, engr. CD 11/2.

LOW BIDDERS

Ga., Blackshear—City, sanitary sewer imprvs., from **M. G. Aldridge, Macon, $63,256.** CD 10/31.

Ga., La Grange—City, cancelled bids to have been opened Dec. 19, sanitary sewers imprvs. Project postponed. CD 11/16.

CONTRACTS AWARDED

Del., Wilmington—New Castle County Levy Court, Municipal bldg., sanitary sewers, pumping station and force mains to James Julian, 405 S. Du Pont Rd., Elsmere, $83,069. John I. Cahalan, Municipal Bldg., Wilmington, engr.

N. J., Lavallette—Boro, sanitary sewers, pump station and sewage treatment plant, to Frank Nero & Son, 250 Mechanic St., Red Bank, **$280,000.** Bids 11/3. CD 10/25.

BRIDGES

LOW BIDDERS

Kansas—State Hy. Comn., Ashland, Nov. 8, Bridge 183-13-1.9, 32 ft., three 40 ft. 32 ft. continuous slab spans, Sta. 108 plus 07, Proj. 183-13 K 6122. (1), Clark Co.; Bridge 160-60-28.8, 40 ft., 50 ft., 40 ft., continuous rein.-con. girder spans, Sta. 631 plus 45, Proj. 160-60 K 6116 (1), Meade Co.; and Bridge 283-13-6.6, 64 ft. five 75 ft., 61 ft., steel beam spans, Sta. 35 plus 78.98, Proj. 283-13 K 6119, Clark Co., from E. W. Geiger, Inc., Topeka, $137,027. CD 10/26.

Texas—State Hy. Comn., Austin, Nov. 15, underpass approaches Hy. SH 550, UI 1082 (3), Tarrant Co., from F. M. Reeves & Sons, P. O. Box 972, Austin, Zone 5, $415,713. Est. $300,000. CD 11/8.

CONTRACTS AWARDED

▲ **New Jersey and Pennsylvania**—Delaware River Joint Toll Bridge Comn., 526 Broad St. Bank Bldg., Trenton, 8, N. J., constr. Morrisville approach to Delaware River Bridge from Morrisville, Pa. to Trenton, N. J., to Union Bldg. & Constr. Co., 631 Main Ave., Passaic, N. J. **$1,404,226.** Bids 11/2. CD 10/3.

STREETS AND ROADS

LOW BIDDERS

Texas—State Hy. Comn., Austin, Nov. 15, fdn. course and one course surf. tr. 4.176 mi. Hy. FM 1382, Dallas Co, from Spencer Constr. Co., Inc., Carrollton, **$105,391*****c. conc. 0.411 mi. U. S. Hy. 75, UG 515 (9) and U-515 (14), Dallas Co., from Austin Bridge Co. and Austin Road Co., P. O. Box 1590, Dallas, **$533,697**, est. $450,000***flexible base, one course surf. tr. 11.019 mi. Hy. FM 251, R 812-4-1, Cass Co., from H. R. Henderson & Co., P. O. Drawer 313, Marshall, **$147,585*****flexible base, two course surf. tr. 7.127 mi. Hy. FM 517, V 978-1-1, Galveston Co., from Austin Road Co., P. O. Box 1590, Dallas, **$253,539*****flexible base, two course surf. tr. 11.79 mi. Hy. S. H. 51, S 649 (3), Crane Co., from Bryan & Hoffman, P. O. Box 390, Plainview, **$154,529**, est. $158,000***fdn. course, one course surf. tr. 6.829 mi. FM 1178, R 752-3-1, Bell Co., from Thomas & Ratliff, Rogers, **$67,803*****fdn. course, prime coat, one course surf. tr. 6.945 mi. Hy. FM 182, R 1219-2-1, Coryell Co., from Dean Word Co., P. O. Box 330, New Braunfels, **$81,793*****flexible base, single asph. surf. tr. 18.264 mi. Hy. US 80 and Spur 189, F 468 (7), Taylor and Callahan Counties, from Ernest Loyd, P. O. Box 1120, Fort Worth, Zone 1, **$660,862*****flexible base, one course surf. tr. 4.388 mi. Hy. FM 1416, R 627-4-1, Newton Co., from Menefee Bros. & Alford, Center, **$72,192*****flexible base, one course surf. tr. 8.265 mi. Hy. FM 1397, R 945-1-1, Bowie Co., and flexible base, one course surf. tr. 5.34 mi. Hy FM 954 and 1294, R 1265-1-1 and R 1441-1-1, Fayette Co., from Cage Bros., 607 Travis Bldg., San Antonio, **$101,991** and **$79,961** respectively. CD 10/30, 11/2 and **11/8.**

CONTRACTS AWARDED

New Hampshire—State Hy. Dpt., Dpt. P. Wks., Concord, surf. tr. gravel 1.496 mi. Long Island Rd. in town of Moultonboro, Proj. No. S 38 (1), Carroll Co., to D. E. Ambrose, Waukewan St., Meredith, **$61,090.** CD 10/17.

Wash., Yakima—Yakima Co., Court House, grading, ballast and surf. 11 mi. roads west of here, to Riverside Sand & Gravel Co., Yakima, **$136,14.** CD 8/29.

EARTHWORK, WATERWAYS

BIDS ASKED

† **Alabama**—B.A. About 12/12—U. S. Eng., P.O. Box 1169, Mobile, channel imprvt. of Black Creek, Gadsden, Serial No. CIVENG 01-076-51-28.

† **Colorado**—B.A. 12/14—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, 4 hydraulic hoists and 6 conduit liners for Carter Lake Reservoir, Colorado-Big Thompson Proj. Spec. DS-3239. L. N. McClellan, ch. engr.

CONTRACTS AWARDED

Fla., West Palm Beach—Internal Imprvt. Bd., Tallahassee, reclamation of 4800 acres of everglades land in Palm Beach Co., near here, to Simmons-Weeks, Inc., Belle Glade, $60,000. Prewett & Hall, Clewiston, engrs. Bids 10/30, awarded 11/13.

▲ **Idaho, Mountain Home**—Idaho Power Co., 1220 Idaho St., dam and power plant on Snake River, near here, to Morrison-Knudsen Co., Inc., 319 Broadway, Boise, $18,500,000. CD 8/23, under Unclassified.

† **Washington**—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, dredging Hylebos waterway channel, Tacoma, Serial No. CIVENG 45-108-51-23, to General Constr. Co., 3840 Iowa St., Seattle, **$31,488.** Est. $45,431. Bids 11/14. CD 11/6.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

AIRPORTS

LOW BIDDERS

Pa., Phila.—AIRPORT—Dpt. P. Wks., City Hall Annex, fixed base operations bldg. at Phila. International Airport, from M & L Constr. Co., Inc., 108 S. 40 St. $78,644. A. Zane Hoffman, c/o owner, engr. CD 2/19/46.

PUBLIC BUILDINGS

BIDS ASKED

Mich., Port Huron—SCHOOL—B.A. 12/5—City, Russell M. Norris, secy., Bd. Educ., 2 story, bsmnt., brick, steel school, $750,000. Plans deposit $25 refundable to bidders. Frantz & Spence, 118 N. Washington Ave., Saginaw, archts. CD 12/15/49.

Ala., Gadsden—HOUSING—B.A. 12/7—Gadsden Housing Auth., c/o Paul W. Hofferbert, archt., Gadsden. Carver Village Housing, incl. 160 units. Plans deposit $50. CD 1/9.

Ala., Huntsville—HOUSING—B.A. 12/12—Huntsville Housing Auth., c/o Paul W. Hofferbert, archt. Gadsden, 100 housing units. Extended date. CD 11/15.

† **Ill., Lemont**—TECHNICAL—B.A. 12/12—U.S. Atomic Energy Comn., Argonne National Laboratory, Downers Grove, 2 story, brick, steel, concrete Technical Bldg. 208 Voorhees, Walker, Foley & Smith, 101 Park Ave., New York, N. Y., archts. CD 10/13.

S. C., Aiken—HOUSING—B.A. 12/12—Aiken Housing Auth., c/o Wm. Stork, Jr., archt., 819 Harden St., Columbia, 80 unit, Valley Homes Housing. Plans deposit $50.

▲ **Ont., Ottawa**—STATISTICS—B.A. 12/13—Acting Secy., Dpt. P. Wks., Hunter Bldg., Ottawa, superstructure 2 story, bsmnt., 300x600 ft. double E design, rein.-con., steel frame, brick of Dominion Bureau of Statistics Bldg., Tunney's Park Development, Approx. $4,000,000. Plans deposit $200. G. Brault, c/o owner, archt. CD 12/1/43.

Ala., Gadsden—HOUSING—B.A. 12/14—Gadsden Housing Auth., c/o Paul W. Hofferbert, archt., Gadsden, Emma Samsom Homes incl. 220 units. Plans deposit $50. CD 1/9.

Ga., East Point—HOUSING—B.A. 12/14—East Point Housing Auth., c/o Abreu & Robeson, archts., 22 Marietta Street Bldg., Atlanta, 200 housing units, Projs. GA78-1 and GA78-2. Plans deposit $50. CD 11/15.

Ga., Moultrie—HOUSING—B.A. 12/14—Moultrie Housing Auth., c/o Abreu & Robeson, archts., 22 Marietta St. Bldg., Atlanta, 125 housing units, Projs. GA60-1 and GA60-2. Bids 9/6 rejected. CD 9/13, under LB.

▲ **Tex., Brownsville** — DWELLINGS — B.A. 12/14 — Brownsville Housing Auth., Brownsville, 128 low-rental dwelling units. $1,231,000. Plans deposit $50. Bid date changed. Boese & Harkrider, T & P Passenger Bldg., Fort Worth, archts. CD 11/14.

Ga., Columbus—HOUSING—B.A. 12/15—Columbus Housing Auth., c/o L. D. Raines & E. Owen Smith, archts., 2443 Wynnton Rd., Columbus, Luther C. Wilson Homes, 300 housing units. Plans deposit $100. CD 7/20.

Ala., Montgomery—HOUSING—B.A. 12/19—Montgomery Housing Auth., c/o Pearson, Tittle & Narrows, archts., First National Bank Bldg., 216 housing units. Plans deposit $50. CD 11/28/49.

Calif., Patton—ADMINISTRATION, etc.—B.A. 12/19—State Div. Architecture, P. Wks. Bldg., Sacramento, (1) general; (2) heating, ventilating and refrigeration (3) plumbing and (4) electric 1 story, bsmnt., 12,500 sq. ft. administration bldg.; 1,200 sq. ft., auditorium and chapel bldg. and 190,000 sq. ft. general site grading at Patton State Hospital. Plans deposit $50. Anson Boyd, Sacramento, state archt. CD 2/28/45.

Tex., Premont—HIGH SCHOOL—B.A. 12/19—Premont Independent School Dist., Premont, steel Junior High School, $350,000. Ford & Rogers, Willow Way, Route 7, San Antonio, archts. CD 9/27.

Mich., Benton Harbor—HOUSING—B.A. 12/20—City, Elden Butzbaugh, chn. City Comn., City Hall, 94 brick, family housing unit, Conkey Field. $900,000. Leineweber, Yamasaki & Hallmuth, 948 Penobscot Bldg., Detroit, archts.

LOW BIDDERS

La., Natchitoches—SCHOOL—Natchitoches Parish School Bd., Nov. 13, elementary school and negro high school, from Tudor Constr. Co., Alexandria, **$421,373** and **$317,674** respectively. CD 10/30.

Mass., Milton—SCHOOL—Town, E. E. Erickson, chn., Oct. 26, school, off Canton Ave., from Vara Constr. Co., Huntington Ave., Boston, **$763,000.** CD 10/3.

Mass., Revere—HOUSING—City of Revere Housing Auth., Police Station Pleasant St., Oct. 20, 84 housing units, Proj. 200-1, from Palmer Zoppo Co., 842 Providence Hy., Norwood, **$964,644.** CD 10/3.

▲ **Okla., Norman**—WARD, etc.—Bd. of Affairs, Capitol, Oklahoma City, Zone 5, Oct. 31, buildings at Central State Hospital, from Manhattan Constr. Co., Man-

Continued on page 56

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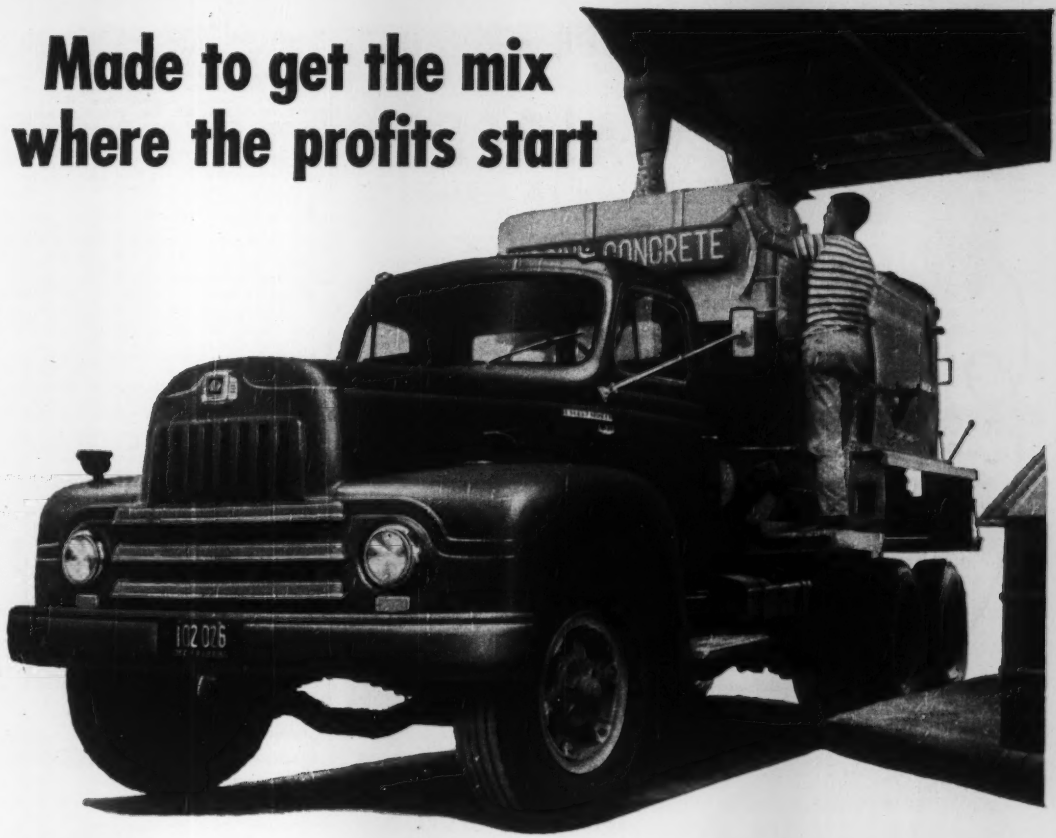

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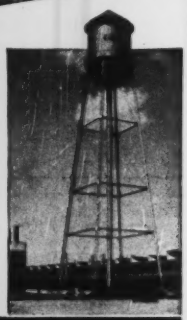

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(Continued from page 54)

hattan Bldg., Muskogee, ward bldg., $335,112; ward bldg. for men, $450,012; convalescent bldg. for patients, $361,660, est. $354,000. CD 10/17.

Okla., Supply—WARD—Bd. of Affairs, Capitol, Oklahoma City, Zone 5, Nov. 14, ward bldg. for seniles at Western Oklahoma Hospital, from Ken L. Meyer, Woodward, $266,629. Est. $248,820. Bramblett & Baldwin, Petroleum Bldg., Oklahoma City, Zone 2, engrs.

Okla., Taft—WARD, etc.—Bd. of Affairs, Capitol, Oklahoma City, Zone 5, Oct. 31, ward and school bldgs. for mental defectives at Taft Negro Hospital, from Manhattan Constr. Co., Manhattan Bldg., Muskogee, $320,048. CD 10/24.

Ont., Toronto—APARTMENTS—Housing Auth. of Toronto, H. E. McCallum, mayor, City Hall, 2 apartments 48 suites each Nos. 14 and 19 in Regent Park Housing, from W. B. Sullivan Constr. Ltd., 30 Bloor St. West $647,158. CD 10/20.

CONTRACTS AWARDED

▲ **Conn., Bridgeport**—SCHOOL—State, R. S. Thatcher, comptroller, 114 State Capitol, Hartford, Bullard Havens Technical School B/A-R-75, to E. & F. Constr. Co., 94 Wells St., $1,398,000. Bids 10/30, awarded 11/3. CD 11/6, under LB.

Del., Wilmington—SCHOOL—Alexander I du Pont Special School Dist., Wilmington, and State Bd. Educ., Dover, school in Greenville, to Rupert Constr. Co., 3400 Lancaster Ave., $721,000. Bids 11/1. CD 11/15, under LB.

▲ **Ga., Americus**—HOSPITAL—City and Sumter Co., hospital, to W. K. Upchurch Constr. Co., Farm Security Bldg., Montgomery, Ala., $1,117,949. Bids 10/19. CD 10/27, under LB.

Kan., Ulysses—SCHOOL—Bd. Educ., Ulysses, general contract, 1 story, concrete block, brick, irregular shaped high school, to Carl Nolan Constr. Co., Dodge City, $331,556. Bids 11/2. CD 10/11.

▲† **Md., Bethesda**—SHOPS, etc.—Public Bldgs. Service, General Services Bldg., Wash. 25, D. C., 4 story bldg. to house shops and laundry, etc. at U. S. Public Health Service Development, National Institute of Health, to F. H. Martell, 1023 20 St. N. W., Wash., D. C. $2,883,000. CD 11/16, under L.B.

▲ **N. C., Chapel Hill**—NURSES HOME, etc.—University of North Carolina, W. D. Carmichael, Jr., controller, Gerrard Hall, nurses' home and interne quarters, to J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, $1,533,900. Bids 10/19. CD 10/24, under LB.

▲† **Wash., Richland**—MILITARY CONSTRUCTION—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, military construction Serial No. 51-55, to Waale-Campian Co., 2100 S.W. Jefferson St., Portland, Ore., $657,127, Est. $647,501 CD 11/8, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

Mich., Detroit—HOSPITAL—B.A. 12/5—At office Albert Kahn Associated Architects & Engineers, Inc., archt., 345 New Center Bldg., 3 story, brick, concrete hospital for Jewish Hospital Assn. $300,000.

▲ **Tenn., Memphis**—Y.M.C.A. BLDG.—E.A. 12/15—Young Mens Christian Assn., 245 Madison St., Zone 1, 7 story, masonry, steel Y.M.C.A. bldg. addn., concrete fdn. $1,400,000. Walk C. Jones-Walk C. Jones Jr., 1215 Poplar St., Zone 2, archts.

SOON LETS CONTRACT

Ga., Columbus—CHURCH—Beallwood Baptist Church, c/o Jas. J. W. Biggers & Assocs., archts., Flowers Bldg., church.

LOW BIDDERS

Ill., Broadview—OFFICE, etc.—Allied Van Lines, Inc., 25 and Roosevelt Sts., cancelled bids to have been opened Nov. 1, 80x280 ft. office and 60x140 ft. terminal, $500,000. Frederick Stanton, 225 N. Michigan St., Chicago, Zone 1, archt. CD 10/24.

Tex., San Antonio—LIBRARY—Trinity University, W. Eshby St., Nov. 14, library, incl. air-conditioning, from James Stewart & Co., Box 1716, $295,500. CD 11/1.

CONTRACTS AWARDED

Calif., Sacramento—APARTMENT—Jere Strizek, 2618 El Paseo Lane 64-unit apartment in Del Paso Park View, Unit 2, Owner builds. $600,000.

▲ **Conn., Hartford**—LIBRARY—Trinity College, G. K. Funston, pres., library, South Campus, Trinity College, to Industrial Constr. Co., 120 Prospect Ave. $1,000,000. Awarded 11/3. CD 11/1, under LB.

Del., Greenville—EDUCATION, etc.—Christ Church Episcopal Church, Greenville, religious education bldg. and chapel, to W. D. Haddock Constr. Co., Elsmere. Approx. $250,000. Wm. Heyl Thompson, 1717 Sansom St., Phila., Pa., archt.

Ga., Albany—CHURCH—First Methodist Church, c/o Dennis & Dennis, Richard V. Richards, assocs., archts., Albany, church, to S. J. Curry & Co., Albany. Approx. $275,000. Bids 10/25. CD 10/20.

▲ **N. Y., New York**—APARTMENT—Sutton 53rd Street Corp., c/o contractor, general contract 20 story luxury rental project for 390 families, on southerly extension of Sutton Pl. between 53 and 54 Sts., to Paul Tishman Co., Inc., 595 Madison Ave. Approx. $7,000,000. Arthur Weiser, 20 E. 53 St., archt. CD 9/7.

Pa., Phila.—HOMES—L. W. Becker, 4411 N. Broad St., 39 homes, Ashdale and Bingham Sts., separate contracts. Approx. $400,000. Lewis J. Cowan, 1505 Pine St., archt.

▲ **Pa., Phila.**—HOMES—Saul T. Dishler, 2127 E. Washington Lane, 114 homes, Vernon Rd., separate

contracts. Approx. $1,026,000. Henry S. Berg, 1411 Walnut St., archt.

Pa., Phila.—HOMES—Disston Homes, Inc., 1740 Georges Lane, 36 homes, Glenview St., separate contracts. Approx. $324,000. Christian H. Fries, 3701 N. Broad St., archt.

Pa., Phila.—HOMES—M I T West Corp., 1325 Walnut St., 46 homes, McKean St., separate contracts. $350,000.

▲ **Pa., Phila.**—HOMES—Newtown Square Constr. Co., 1 S. Olive St., Media, 62 homes, Newtown-Media Rd., separate contracts. Approx. $1,100,000. David Slott, 7060 Garrett Rd., Upper Darby, archt.

Pa., Phila.—HOMES—Somerton Constr. Co., c/o L. J. Cowan, archt., 1505 Pine St., 54 homes, Glenview and Longshore Sts., to Abraham Hay, 1936 Riverside Dr., Trenton, N. J. Approx. $560,000.

Tenn., Memphis—RESIDENCES—Jac C. Renshaw Co., c/o Faires & Sanford, archts., Porter Bldg., residential development, Perkins St. Owner builds. Approx. $311,000.

Tex., Dallas—BANK—First National Bank, 106 E. Main St., 3 story steel, masonry bank addn., concrete pier and beam fdn., to Dolph Constr. Co., 3901 Elm St. Approx. $750,000. George L. Dahl, 2101 N. St. Paul St., engr. and archt.

INDUSTRIAL BUILDINGS

BIDS ASKED

Mich., Detroit—PLANT—Bids Asked—Wineman Realty Co., 150 Michigan Ave., 1 story, 110-120 ft., brick, masonry plant, Gratiot St. $90,000. Charles N. Agres, Inc., 1140 Book Bldg., engrs.

Pa., Phila. — MANUFACTURING — Bids Asked — Heintz Mfg. Co., Front St. and Olney Ave. (selected list bidders), 1 story, 100x116 ft., brick, steel mfg. bldg. addn. Approx. $82,000. David Godshall, c/o owner, engr.

SOON LETS CONTRACT

Ala., Brewton—WAREHOUSE, etc.—Southern Pines Electric Co-operative, c/o Southern Eng. Co., archt., 1000 Crescent Ave. N.E., Atlanta, Ga., soon lets contract warehouse and office. Approx. $85,000.

Ark., Salem—WAREHOUSE, etc.—North Arkansas Electric Co-operative, c/o Ginnocchio, Cromwell & Assoc., archts., Hall Bldg., Little Rock, soon lets contract warehouse and office. CD 7/20.

O., Lima—FACTORY—Ohio Steel Foundry Co., Lima, soon lets contract 1 story factory, rolling mill addn., heavy machine shop. Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., archt.

Ont., Toronto — FACTORY, etc. — Addressograph-Multigraph of Canada Ltd., 1152 Bay St., soon lets contract 2 story, 122x286 ft., with front end 24-12 ft. office rein.-con., structural steel, factory and head-office bldg., Hollinger Rd. at Dohmer Ave., East York. $250,000. Mollard & Whaley, 57 Bloor St. W., archts. CD 9/7/45.

LOW BIDDERS

Fla., Orlando—PLANT—Orange Industries, c/o Richard Boone Rogers, 14 E. Church St., project cancelled manufacturing plant. $150,000. CD 11/13.

Ga., Newnan—WAREHOUSE, etc.—Coweta-Fayette Electric Membership Corp., Newnan, warehouse and office, from Statewide Constr. Co., 1315 Victor Rd. N.E., Atlanta, Ga. $98,991. CD 10/31.

Pa., Phila.—GARAGE—Boyce Motor Lines Inc., 3946 N. 16 St., rejected bids Oct. 25, warehouse, office and garage. $82,000. CD 10/25.

CONTRACTS AWARDED

Conn., New Britain—WAREHOUSE, etc.—Middle Atlantic Co., W. Main St., warehouse and office, to B. Stein Bldg. Co., 27 Winthrop St., $98,750. Awarded 11/8. Deibert K. Perry, 17 Court St., archts.

Fla., Jacksonville—WAREHOUSE—J. N. David, 626 E. 8 St., concrete, brick warehouse, to A. L. Clayton Co., Dennis St., $85,000. Westinghouse Electric & Supply Co., lessees.

▲ **La., Lake Charles**—REFINERY—Continental Oil Co., Oil & Gas Bldg., Houston, Tex., design and construction processing equip. for expansion program, to E. B. Badger & Sons Co., 75 Pittsburg St., Boston, Mass. Total est. $10,000,000. CD 10/10.

▲ **O., Cleveland**—PLANT—Republic Steel Corp., Republic Bldg., coke oven plant and steel making facilities, two 63 oven batteries of coke ovens and four 275 ton open hearth furnaces, to Koppers Co. Inc., Koppers Bldg., Pittsburgh, Pa. Approx. $30,000,000. CD 6/6.

▲ **Tenn., Chattanooga** — PLANT — Cutter Laboratories, c/o contractor, mfg. plant, to Austin Co., 16112 Euclid Ave., Cleveland, O. Approx. $1,000,000.

Tex., Texarkana—POWER PLANT SUB-STATIONS—Southwestern Gas & Electric Co., J. D. McCarty, div. engr., Texarkana, No. 1, power plant substation, $335,000; No. 3, power plant sub-station, $165,000, own forces. CD 3/23.

W. Va., Bluefield—WAREHOUSE—Bluefield Grocery Co., rebuilding warehouse, to George McCulloch, c/o owner, $100,000.

Que., Magog—FACTORY—Dominion Textiles Co., Ltd., 710 Victoria Square, Montreal, 1 story, 82x87 ft., rein.-con., brick factory addn., to Fraser-Brace Eng. Co. Ltd., 360 St. James St. W., Montreal. Approx. $120,000.

UNCLASSIFIED

BIDS ASKED

† **R. I., Providence**—TRANSFORMERS, etc.—B. A. 12/6—At office M. L. Rutter, Commander (CEC) USN, Acting Officer in Charge of Construction, First Naval Dist. Headquarters, 495 Summer St., Boston, Mass., installing transformers and motor generators at U. S. Naval and Marine Corps Reserve Training Center, Spec. 25481. Plans deposit $10.

Ont., Meaford—HARBOR WORK—B.A. 12/6—Dpt. P. Wks., R. Fortier, acting secy., Hunter Bldg., Ottawa, repairing harbor walls, $121,000. J. M. Wilson, dist. engr.

† **N. C., Camp Lejeune**—COMMUNICATIONS—B.A. 12/8—Pub. Wks. Office, Bldg. 1005, Marine Barracks, communications for individual field firing course at Marine Barracks, Spec. 25852. Plans deposit $10.

Ga., Savannah — B. A. 12/14 — Georgia Port Authority, c/o Robert & Co. Assocs., engrs., 96 Poplar St. N.E., Atlanta, rein.-con. wharf with bulkheads, fender sys., etc. Plans deposit $25.

▲ **Mississippi and Alabama**—OIL PIPE LINE—Bids Asked—Gulf Oil Refining Co., Gulf Bldg., Houston, Tex., 150 mi. 16 in. crude oil pipe line, Lumberton, Miss., to Mobile, Ala., $3,750,000; pumping station, near Lumberton, Miss., $375,000; crude oil pumping station, near Mobile, Ala., $350,000. CD 11/16.

LOW BIDDERS

Nebraska—RURAL DISTRIBUTION LINES—Panhandle Rural Electric Membership Assn., Cecil Vickers, pres., Alliance, rejected bids Oct. 17, 332.3 mi. rural distr. lines Arthur, Cherry, Garden, Grant, McPherson and Sheridan Counties, L. B. $404,158. CD 11/9. under LB.

▲ **N. Y., New York**—TUNNEL—President Manhattan Boro, Municipal Bldg., Zone 7, Nov. 17, tunnel complete with ramp approaches in 1st Ave. between E. 41 and E. 48 Sts., incl. regrading and final restoration of 1st Ave. between E. 40 and E. 49 Sts. etc. vicinity of United Nations Site, with ramp approaches, etc. between E. 40 and E. 49 Sts. from Del Balso Constr. Co., 500 Zerega Ave., Bronx 61, $3,988,426. CD 11/10.

CONTRACTS AWARDED

Georgia—RURAL DISTRIBUTION LINES—Colquitt Co. Rural Electric Co-operative, Moultrie, 4 mi. 66 kv rural distr. lines, 15.4 mi. rural distr. lines, 23.4 mi. conversion and 1500 kv substation in Brooks and Lowndes Counties, to Leo T. Barber, Moultrie, $89,953. Bids 11/14. CD 10/31.

La., Lake Charles—MOTOR COURT—Mr. & Mrs. Fred Romero, c/o contractor, motor court, to T. Miller & Sons, P. O. Box 921, $96,550.

Minn., Rochester—GRANDSTAND—City, Bd. Park Comrs., W. C. Schacht, secy., structural steel, concrete grandstand at Mayo Field Ball Park, to A. E. Benike, Rochester, $68,900. Bids 10/21. H. V. Feehan, 1004 Marquette Ave., Minneapolis, archt. CD 2/21.

Tenn., Madisonville—GAS SYSTEM—City, natural gas sys., to Bush Building Co., 805 8th Ave. N., Nashville, $99,620.

Texas—OIL PIPE LINE—Texas Pipe Line Co., Texas Bldg., Houston, 56 mi. 12¾ in. crude oil pipe line, near Wichita Falls, Wichita Co., to R. H. Fulton & Co., Lubbock, $840,000. CD 11/10.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Md., Baltimore**—City voted $22,500,000 bonds, water mains.

▲ **N. C., Durham**—City, bond election May 8, WW imprvs. $1,350,000.

▲ **Tex., Austin**—City, voted bonds, water sys. rehabilitation, lines and service extens., plant unit, $1,983,000; WW (supply), $1,000,000. Wm. Parker, city planner. CD 10/20.

▲ **Tex., Brownsville**—City, bond election Dec. 9, water plant, $450,000; water sys. rehabilitation, $300,000; water c.i. distribution lines, water supply expansion, $450,000. E. W. Watts, City Hall, city engr. CD 7/30/48.

SEWERS, WASTE DISPOSAL

▲ **Calif., Sacramento**—City, City Hall, voted $4,400,000 bonds, sewage treatment plant. CD 10/17.

▲ **Ill., Mount Vernon**—City, City Hall, defeated, $1,000,000 bonds, sewage treatment plant. CD 11/1.

▲ **Md., Baltimore**—City voted $5,000,000 bonds, sewers.

▲ **O., Akron**—City, City Hall, defeated $5,000,000 bonds, sewer expansion program. CD 9/15.

▲ **O., Cleveland**—City, City Hall, Lakeside and 6 Sts., voted bonds Nov. 7, sewers. $2,000,000.

▲ **Pa., Bedford**—Bedford Boro, sewage treatment plant, complete sewage facilities for 4,000 people, $1,000,000. Thomas Peelor, Indiana, engr. CD 11/29/45.

▲ **R. I., Providence**—Blackstone Valley Sewer Dist. Comn., 238 State St., voted $2,500,000 bonds sewerage projects.

▲ **Tex., Austin**—City, voted bonds, sanitary sewers, $1,500,000; disposal plant, $500,000; storm sewers, $550,000. Wm. Parker, city planner. CD 10/20.

BRIDGES

Fla., Ormond—Ormond Special Rd. & Bridge Dist. of Volusia Co., Deland, voted $800,000 bonds Nov. 7, bridges, etc. CD 11/1.

▲ **Michigan**—State Hy. Comn., Lansing,

Midland—rein.-con., steel hy. bridge carry M 20 over Tittavawassee River, $1,200,000, Harry C. Coons, Hy. Dpt., Lansing, ch. engr.

O., Painesville—Comrs. Lake Co. Court House, voted $600,000 bonds Nov. 7, replace 22 bridges. CD 11/21/49.

▲ **O., Zanesville**—Comrs. Muskingum Co., Court House, voted $2,500,000 bonds November 7, imprv. bridges throughout county. CD 6/20.

▲ **Tex., Austin**—City, voted bonds, bridge construction, Business Sect. $400,000; West Sect. $400,000; East Sect., $600,000; North Sect. $350,000. Wm. Parker, city planner. CD 10/20.

▲ **W. Va., Fairmont**—City, City Hall, plans by Hazelet & Erdal, 63 W. Jackson Blvd., Chicago, 4, Ill., toll bridge, $1,150,000. CD 2/9/45.

STREETS AND ROADS

▲ **Calif., Sacramento**—City, City Hall, voted $2,028,000 bonds, imprv. streets.

▲ **Md., Baltimore**—City voted $4,000,000 bonds, streets, bridges and grade crossings.

Minn., Austin—City, J. H. Welland, recdr., voted bonds Nov. 7, street paving in downtown dist. $700,000. CD 12/8/43.

Minn., Benson—City, D. M. Lawson, clk., voted $125,000 bonds Nov. 7, street imprvs. CD 10/24.

▲ **N. C., Durham**—City, bond election May 8, street paving. $1,000,000.

▲ **O., Cleveland**—City, City Hall, Lakeside and 6 Sts., voted bonds Nov. 7, street wid'n. $2,500,000; street paving, $2,000,000. CD 7/11.

R. I., Providence—City, City Hall, voted $600,000 bonds, street imprvs. CD 7/19/49.

Tex., Austin—City, voted bonds, city street imprvs., paving. $683,000. Wm Parker, city planner. CD 10/20.

▲ **Tex., Brownville**—City, bond election Dec. 9, street paving, $1,450,000; street repairing, $300,000. E. W. Watts, City Hall, city engr. CD 11/6.

Tex., Liberty—Liberty Co., R. E. Pitts, judge, Court House, farm-to-market road constr. and imprvs., Kenefick Rd., $55,000; farm-to-market road constr. and imprvs. 4.7 mi. Daisetta cut-off Rd., $90,000; farm-to-market road constr. and imprv., 6 mi. Winfrey Rd., $115,000; farm-to-market road constr. and imprv. 2.9 mi. Hill Store Rd., $60,000.

Tex., San Angelo—City, street imprvs. and paving. $850,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

Tex., Sealy—City, voted bonds, street imprvs. and paving, $145,000.

EARTHWORK, WATERWAYS

Calif., Newport Beach—City Council, 3300 W. Central Ave., dredging small craft harbor along ocean front, $500,000-$1,000,000. J. B. Webb, c/o owner, engr.

▲† **Colorado**—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, constr. Willow Creek Dam, approx. 4 mi. north of Granby. Prospective bidders wishing to visit the site are advised to contact U. V. Engstrom, Bureau Reclamation, Grand Lake, constr. engr.

AIRPORTS

▲† **Calif., Fairfield**—AIRFIELD PAVEMENT—U. S. Eng., First and Douglas Sts., N. W. Wash. 25, D. C., airfield pavement, $1,796,800.

▲† **Calif., Muroc**—BOMBING FACILITIES etc.—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., range bombing facilities imprvs., $144,000; barracks, $1,200,000, Muroc Air Force Base. CD 10/26/48.

▲† **Fla., Eglin Air Force Base**—RAILROAD, etc.—U. S. Eng., First and Douglas Sts. N. W., Wash., 25, D. C., access railroad, $650,000; armament engineering test facility, $6,900,000.

▲† **Me., Limestone**—BUILDINGS—U. S. Eng., P. O. Box 2316 Boston 7, Mass., barracks, $1,270,000; warehouse, $324,000; fire and crash station, $150,000; bomb handling and storage facilities, $400,000; parking aprons and warm-up pad, $2,200,000; utilities, $1,153,516; roads and parking areas, $300,000; administrative telephone sys., $222,400; communication and electronics facilities, $1,154,500; motor pool, $500,000; refrigeration plants, $200,000; school, $57,000, at Limestone Air Force Base.

▲ **Mo., St. Louis**—AIRPORT IMPRVS.—City, c/o Conway B. Briscoe, dir. P. Utilities, and chn. Municipal Airport, City Hall, Zone 3, constr. 6,000 ft. north-south runway and 2,500 ft. exten. to present 5,100 ft. east-west runway, at Lambert-St. Louis Municipal Airport, Bridgeton, St. Louis Co. $1,420,676. CD 6/12/44.

▲† **Mont., Great Falls**—BARRACKS, etc.—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., barracks $1,200,000, airfield pavements, $1,129,000, at Great Falls Air Force Base.

▲ **O., Cleveland**—AIRPORTS—City, City Hall, Lakeside and 6 Sts., voted bonds Nov. 7, municipal airport, $4,000,000; Lakefront airport, $750,000. CD 4/7.

▲† **Wash., Spokane**—BARRACKS—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., barracks, Spokane Air Force Base, $1,200,000.

LATIN AMERICA

Chile, Con—Con-Cia Nacional de Petroleo, Sanitago, plans refinery. $5,000,000.

Mexico, Mexico City—Sria. de S. y A. Paseo de la Reforma y Lieja, Mexico City, plans eye hospital. $500,000.

PUBLIC BUILDINGS

▲ **Ala., Florence**—HOUSING—Florence Housing Auth., c/o Turner & Northington, Florence, 250 housing units, $2,000,000.

▲ **Calif., Fresno**—POLICE DEPARTMENT—City, City Hall, voted $1,600,000 bonds, police department bldg.

▲ **Calif., Long Beach**—SCHOOLS—Long Beach Unified School Dist., 715 Locust Ave., voted $19,800,000 bonds, schools. CD 10/27.

▲ **Calif., San Diego**—SCHOOLS—San Diego Unified School Dist., 825 Union Ave., voted $11,860,000 bonds, city schools. CD 10/27.

▲ **Ga., East Point**—HOUSING—East Point Housing Auth., c/o Abreu & Robeson, 22 Marietta St. Bldg., Atlanta, 200 housing units, $1,500,000.

▲ **Ia., Davenport**—COURT HOUSE—Scott Co. defeated $2,999,000 bonds, court house. CD 10/18.

▲† **Md., Aberdeen Proving Ground**—FACILITIES—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., research facility for air-to-ground firing of rockets and missiles, $208,000; climatic test facility, $2,525,000; explosives loading and disassembly facilities, $181,000.

▲ **Md., Baltimore**—COLLEGE—State Dpt. P. Imprvts., 506 Park Ave., Zone 1, and 2 story, stone armory and field house for Military Science, $450,000; 2 story, bsmnt., stone Auditorium and Fine Arts Bldg., $890,000; 2 story, bsmnt., stone admin. and student union bldg., $450,000; 2 story, bsmnt., stone home economics and infirmary bldg., $350,000; 3 story, bsmnt., stone science bldg. and equip., $1,045,000; two 3 story, stone dormitories, $750,000; 3 story, bsmnt., stone Spencer Hall addn., $700,000; gymnasium, health bldg. and completion swimming pool, $90,000; 1 and 2 story, concrete block storage garage and college equip., $35,000 altering Holmes Hall, $250,000; new stone wing Soper Library addn., alteration, $288,000; altering Baldwin Hall, $10,000; 3 story, bsmnt., stone president's residence and guest house, $65,000; stone Carnegie Hall addn., alteration, $310,000; Spencer Hall addn., alterations, $180,000; stone, rein.-con. Hughes Stadium addn., etc., $125,000; 2 story, bsmnt., brick staff housing, $120,000; outside utilities for new bldgs., $110,000; roads, parking areas, grading and landscaping, $125,000-$225,000, for Morgan State College, Hillen Rd. and Arlington Ave. John B. Funk, 506 Park Ave., Zone 1, ch. engr.

▲† **Md., Camp Detrick**—MUNITIONS, etc.—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., munitions bldg., $531,000; decontamination bldg., $403,000; aerobiology bldg., $540,000; basic science bldg., $902,000; central boiler plant and laboratories, $3,528,000; civilian dormitory, $174,500; meteorological bldg., $181,400; maintenance shops, $300,100; setorage shed, $9,000.

▲ **Miss., Meridian**—SCHOOL—City, bond election Dec. 12, school imprvs. $3,000,000. CD 11/5/43.

Neb., Kearney—SCHOOLS—Bd. Educ., Kearney, voted $250,000 bonds, 3 schools. $950,000. Helleberg & Helleberg, Kearney, archts. CD 11/2.

▲ **N. D., Fargo**—HOME ECONOMICS, etc.—State Bd. Higher Educ., Bismarck, home economics and physical educ. bldg. $550,000; pharmacy bldg. $300,000; heating plant imprvs. $194,000; campus paving $235,000, at North Dakota Agriculture College.

▲ **N. D., Grand Forks**—EDUCATION, etc.—State Bd. Higher Educ., Bismarck, education and auditorium bldg. $580,000; addn. to power plant and boiler $388,700; campus paving $77,797, at University of North Dakota. CD 12/16/48.

▲ **O., Akron**—SCHOOL—Bd. Educ., 70 N. Broadway, voted $13,467,000 bonds Nov. 7, school expansion program. CD 8/23.

▲ **O., Barberton**—SCHOOL—Bd. Educ., Barberton, voted $2,000,000 bonds Nov. 7, school expansion program. CD 8/21.

▲ **O., Cleveland**—SCHOOLS—Bd. Educ., Admin. Bldg., 1380 E. St., voted 1 mill school levy, schools. $9,000,000.

▲ **O., Cleveland**—HOSPITAL—City, City Hall, Lakeside and 6 Sts., voted bonds Nov. 7, city hospital. $1,000,000. CD 5/26/44.

▲ **O., Cleveland**—POLICE, FIRE BLDG.—City, City Hall, Lake and 6 Sts., voted bonds Nov. 7, police-fire bldgs. $2,500,000. CD 7/11.

▲ **O., Columbus**—HIGH SCHOOL—Bd. Educ., Marion Local School Dist., Columbus, voted $1,500,000 bonds Nov. 7, high school. CD 8/2.

▲ **O., Fremont**—SCHOOLS—Bd. Educ., U. E. Diener, supt., Fremont, voted $1,850,000 bonds Nov. 7, school building program, 2 new buildings, addns., imprvs. to other schools. CD 9/22.

▲ **O., Lancaster**—SCHOOL—Bd. Educ., Lancaster, defeated $2,300,000 bonds Nov. 7, school expansion program. CD 9/15.

▲ **O., Marion**—HOSPITAL—City and Marion Co., Marion, voted $1,700,000 bonds Nov. 7, enlarging Marion-City-County Hospital. CD 9/29/48.

O., Sandusky—SCHOOL—Bd. Educ., Court House, voted $950,000 bonds Nov. 7, school building program. CD 11/23/49.

O., Sylvania—SCHOOL—Lucas Co., Exempted Village School Dist., Sylvania, plans completed by Britsch & Munger, Nicholas Bldg., Toledo, school addn., incl. auditorium, gymnasium, enlarging cafeteria, 3 elementary school addns., bus garage and stadium, $750,000. Bonds voted. CD 9/15.

▲ **O., Toledo**—HIGH SCHOOL—Bd. Educ., Washington Twp. School Dist., Whitmer Dr., voted $1,500,000 bonds Nov. 7, Junior High School, near Trilby. CD 8/3.

O., Toledo — SCHOOL — Monclova-Whitehouse-Waterville Consolidated School Dist., Monclova, voted $875,000 bonds, Nov. 7, Anthony Wayne High School, $685,000, revamp present schools, near here. CD 10/19.

▲ **Pa., Harrisburg**—SCHOOLS—Harrisburg School Bd. 121 Chestnut St., voted $4,500,000 bonds, Nov. 7, schools, CD 9/1/49.

Pa., West Mifflin—SCHOOL—Bd. Educ., West Mifflin, Torrance voted bonds 2 story, brick on tile Edison Junior High School. $800,000. Button & McLean, 119 Montgomery St., Pittsburgh, archts. CD 2/24.

Tenn., Memphis—UNDERGROUND PARKING GARAGE—City, City Hall, plans by Norton & Rice, Falls Bldg., underground parking garage between Union and Monroe Sts. on the Bluff. $850,000. CD 4/18/46.

▲ **Tex., Austin**—SCHOOLS—Austin Independent School Dist., Austin, voted bonds, several, permanent type schools. $7,000,000 school addns. Campbell and Rosewood Sts., $250,000; Negro High School 20 acre tract, Rosewood and Thompson Sts., $550,000; South Austin High School (South Austin), $550,000; A. N. McCallum High School (North Austin), $600,000; Junior High School, $575,000; Hyde Park Sect. school, $475,000. CD 10/20.

▲ **Tex., Houston**—DENTISTRY—University of Texas Dental School, c/o Bd., Admin. Bldg., Austin, plans by MacKie & Kamrath, 2713 Ferndale St., dentistry (in Texas Medical Center). $4,000,000. W. P. Moore, 4605 Montrose St., and Lockwood & Andrews, Union Natl. Bank Bldg., consult. engrs. CD 4/11/49.

Va., Lexington—INSTITUTE—Virginia Military Institute, Lexington, plans by Carneal & Johnston, Atlantic Life Bldg., Richmond, science hall at Virginia Military Institute. $500,000. CD 8/18.

▲ **Va., Newport News**—HOUSING—Newport News Housing Auth., Newport News, plans by Williams, Coile & Blanchard, and Harrison, Ballard & Allen Associates, Melson Bldg., 600 housing units, $5,000,000 CD 1/30.

▲ **Wash. Everett**—SCHOOL—School Bd. Everett, voted $1,000,000 bonds Baker Heights Elementary school, $400,000. CD 7/20.

Wash., Kennewick—HOSPITAL—Kennewick Hospital Dist., Kennewick, voted bonds, hospital. $550,000. Whitehouse & Price, Hutton Bldg., Spokane, archts. CD 10/18.

Wash., Olympia—SCHOOL—School Bd., Olympia, voted special levy Nov. 7 school, $600,000. Robert Wohleb, 715 S. Washington St. archt. CD 11/20/48.

▲ **Wash., Port Angeles**—SCHOOL—School Bd., Port Angeles, voted bonds, high school, $1,221,000. Mallis, De Hart & Hopkins, Lyon Bldg., 3 and James Sts., Seattle, Zone 4, archts. CD 9/26.

▲ **Wash., Seattle**—LIBRARY—City, County-City Bldg., Zone 4, defeated bonds, central library. $4,500,000. CD 3/30.

▲ **Wash., Seattle**—HOSPITAL—State of Washington, Seattle, Zone 4, defeated bonds, teaching and research hospital. $10,000,000. CD 2/6.

Wis., Kenosha—SCHOOL—Central High School Dist., Kenosha, plans by L. Monberg, 200 6th St., and Bradley & Bradley, Brown Bldg., Rockford, Ill., high school, $700,000.

Wis., Whitewater — LIBRARY-ADMINISTRATION — Bd. Regents Normal Schools, Madison, plans by Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., Green Bay, and R. C. Kirchhoff, Madison, state archt., 2½ story, 140x140 ft., rein.-con., steel, native stone library-administration bldg. $600,000. CD 10/19/49.

Wyo. Lusk—SCHOOL—Niobrara County School Dist, Lusk, plans by Goodrich & Wilking, Casper, junior-senior high school, $750,000.

▲ **Alaska, Palmer**—HIGH SCHOOL—School Bd., Palmer, high school. $1,000,000.

Alta., Edmonton—SCHOOL—Edmonton Separate School Bd., plans by Dewar, Lawston, Stevenson, 619 Northern Hardware Bldg., 3 story L-shaped high school. $650,000. CD 3/24/44.

▲ **Alta., Edmonton**—BIOLOGICAL SCIENCE—Province of Alberta, Parliament Bldgs., plans by Dewar, Cawston & Stevenson, 618 Northern Hardware Bldg., 4 story, 70x250 ft., concrete, steel, brick stone biological science bldg. on University of Alberta campus. $1,000,000.

▲ **B. C., Nanaimo**—INDUSTRIAL SCHOOL—Province of British Columbia, Parliament Bldgs., Victoria, plans by C. Campbell, Parliament Bldgs., Victoria, 1 story, rein.-con boys' industrial school Brannan Lake, 10 mi. north of here. $1,000,000.

B. C., Vancouver—INSTITUTE—British Columbia Cancer Institute, 11 Ave. and Heather St., plans by Mercer & Mercer, 615 W. Hastings St., 3 story, steel, concrete institute addn. $500,000.

▲ **B. C., Vancouver**—POLICE STATION—City, City Hall, plans by Townley & Matheson, 1376 Hornby St., police station. $1,000,000.

▲ **N. S., Halifax**—HOSPITAL—Municipality, 400-bed mental hospital. $2,800,000. CD 3/24/49.

▲ **Ont., Ottawa**—HOUSING—Central Mortgage & Housing Corp., Hunter Bldg., 500 addnl. houses at Manor Park Area. Approx. $3,500,000.

Ont., Simcoe—HOSPITAL—Norfolk General Hospital Bd., H. M. Jackson, chn., Simcoe, plans by Govan, Ferguson, Lindsay, Kaminker, Maw, Langley & Keenleyside, 515 Jarvis St., Toronto, hospital addn. $500,000. CD 5/12.

COMMERCIAL BUILDINGS

▲ **Calif., La Habra**—DWELLINGS—Mac-Bright Co., 5655 Wilshire Blvd., Los Angeles, plans by Edward H. Fickett, 5657 Wilshire Blvd., Los Angeles, 165 frame stucco dwellings, Cypress Ave. and Whittier Blvd. $1,815,000.

▲ **Calif., Los Angeles**—DWELLINGS—George J. Helzer, c/o Edward H. Fickett, 5657 Wilshire Blvd., Los Angeles, 338 frame, stucco dwellings, Kagel Canyon Rd. and Woodman Ave. $3,000,000.

▲ **Calif., Whittier**—DWELLINGS—Hobart-Williams Co., 5625 Wilshire Blvd., Los Angeles, plans by Edward H. Fickett, 5657 Wilshire Blvd., Los Angeles, 274 frame, stucco dwellings, Mulberry Rd. from Painter to Gunn Ave., $2,466,000.

D. C., Wash.—STORE—Sears Roebuck & Co., 4640 Roosevelt Blvd., Phila., Pa., plans by Ballinger Co., 121 N. Broad St., Phila., Pa., retail department store, Approx. $750,000. CD 11/13.

▲ **Ill., Rockford**—PARKING CENTER—Max Liebling, 206 S. Main St., 4 to 6 story, 345x230 ft., parking center. $2,500,000.

▲ **Ind., Fort Wayne**—CHURCH—First Presbyterian Church, 301 E. Washington St., plans by A. Hensel Firk, 1701 Arch St., Phila., Pa., church, $1,000,000.

Kan., Leavenworth—HOTEL—Leavenworth Community Hotel Co., Inc., Leavenworth, plans by Design, Inc., 916 Sidney St., St. Louis, Mo., hotel, $650,000.

▲ **Ky. Louisville**—HOUSING—Emery Kinkead, 614 E. Broadway, plans by J. Clay Murphey, Jr., 614 E. Broadway, 125 houses, Algonquin Terrace on tract between Bells Lane and Algonquin Parkway. $1,000,000.

▲ **La., New Orleans**—OFFICE—Pan American Southern Corp., 944 St. Charles Ave., plans by Walter W. Ahlschlager, 212 S. St. Paul, Dallas, Tex., and August Perez & Assoc., Audubon Bldg., assoc. archts., converting Bienville Hotel into office bldg., $1,000,000.

Mich., Kalamazoo—HOSPITAL—Bd. Trustees, Bronson Hospital, 3 story, brick, steel, concrete hospital, $970,000.

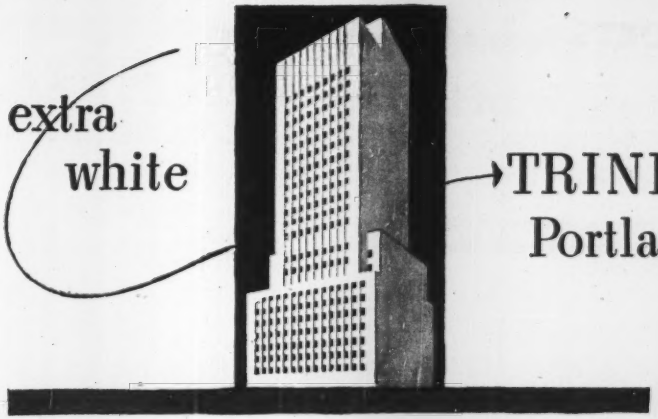
N. J., Belmar—SUPER MARKET—Lee W. Newbury, Interlaken, super market and theater and other stores. $500,000.

▲ **N. J., Jersey City**—HOUSING—Jersey City Redevelopment Agency, 1 Newark St., plans by Mascolo & Massimum, 880 Bergen Ave., Jersey City, 14 story, 2,000 unit housing proj. St. John's site north of Newark Ave., bounded on north by St. Pauls Ave. east by Summit Ave. south by Newark Ave. and west by Boulevard $18,000,000; 14 story 1,600 unit housing at Gregory site downtown bounded on north by Railroad Ave., on east by Warren St. on south on York St. and on west Henderson St., $14,400,000. Agency will clear sites for low cost housing by private builders.

Ore., Portland—STORES—Store Properties, Inc., 714 S. Hill St., Los Angeles, Calif., plans by Harold Johnson, Hollingsworth Bldg., Los Angeles, Calif., 2 story, 100x100 ft. stores bldg. on site of Old Oregonian Bldg., 6 and Alder Sts. $500,000. Thomas Smithson, Beaverton, engr.

Pa., Monongahela—HOSPITAL—Monongahela Memorial Hospital, 2 story, bsmnt., steel, brick, concrete hospital addn. $684,364. McMullin Pringle, Swarm & McMullen, 902 Renshaw Bldg., Pittsburgh, archts. CD 10/17/46.

Pa., Phila.—SHOPPING CENTER, etc.—Penn Fruit Co., 1919 Chestnut St., plans by Thalheimer & Weitz, 1325 Walnut St., shopping center and super market, Roosevelt Blvd., Bustleton Ave. Approx. $500,000. CD 10/27.



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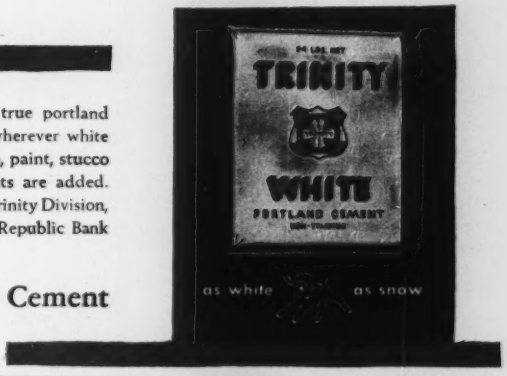

▲ **Tex., Houston**—HOSPITAL—Charity Hospital Assoc., 3501 Buffalo Dr., plans by H. Ed Maddox & C. A. Johnson, 3501 Buffalo Dr., charity hospital on 5 acre site in Texas Medical Center. $2,500,000. Werlin & Kefner, 3501 Buffalo Dr., consult. engrs.

▲ **Tex., Houston**—DWELLINGS—Meadowcreek Village Corp., 4110 Dennis St., plans by Rob. W. Clemens & Assocs., 4110 Dennis St., frame, brick 85 dwellings near Berry Bayou. $650,000; 75 dwellings off Winkler Dr. Exten., $575,000.

Tex., Houston—RESIDENCES—Meadowwood Estates, c/o Ed Williams, Land Development Co., c/o Meadowwood Estates Office, Houston, addnl. 115 frame residences, concrete slab fdn., east of Jacinto City. $925,000.

Tex., San Antonio—OFFICE—Doctor's Building Co., c/o Dr. W. H. Hargis, 205 Camden St., plans by Phelps & DeWees & Simmons, 1501 Majestic Bldg., 6 story bsmnt., rein.-con. frame, brick, hollow tile medical office, pier and beam fdn., air-conditioning. 300 blk. Camden St. $600,000.

▲ **Wash., Whidbey Island**—HOUSING—Yards & Docks Annex, Navy Dpt., Arlington, Va., plans by Stuart & Durham, 1100 Denny Way Seattle, 300 housing units at Naval Air Station under Wheery Act. $3,000-000 CD 1/11.

Wash., Yakima—BANK—Seattle—First National Bank, 2 and Cherry Sts., Seattle, Zone 4, plans by J. W. Maloney, Larson Bldg., 1 story, bsmnt., rein.-con. branch bank. $500,000. CD 5/18.

Wis., Cudahy—CHURCH—St. Fredericks Catholic Congregation plans by Wm. G. Herbst & Assocs., 1249 N. Franklin St., Milwaukee, Zone 2, 5 year program for church, school, sisters, residence, etc., $500,000.

▲ **Ont., Oshawa**—HOUSES—Caruso Contg. Co., 47 Glouchester St., Toronto, 1200 houses in East Woodlands area in Pickering Twp. Approx. $8,000,000.

▲ **Ont., Sarnia**—HOTEL—Sheraton Ltd., 1455 Peel St., Montreal, Que., 200 room hotel, seeking site on waterfront. $2,000,000. CD 3/14/45.

INDUSTRIAL BUILDINGS

Conn., Thompsonville—RESEARCH LABORATORY—Bigelow Sanford Carpet Co. Inc., 140 Madison Ave., New York, N. Y., plans by Lacey Atherton & Davis, Hotel Sterling, Wilkes Barre, Pa., research laboratory, $500,000.

Ga., Chamblee—WAREHOUSE, etc.—J. I. Case 700 State St., Racine, Wis., plans by Frank J. Hoffman, 201 6 St., Racine, Wis., warehouse and office. $600,-000. CD 11/3.

Ind., Noblesville—WAREHOUSE—Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, O. 50,000 sq. ft. warehouse. $500,000.

Ky., Harrodsburg—MANUFACTURING—Owner, c/o Ed. R. Gregg, archt., Heyburn Bldg., Louisville, Zone 2, 40,000 sq. ft. mfg. bldg. $500,000.

▲ **Mich., Battle Creek**—FACTORY—Eaton Mfg. Co., Battle creek, factory for jet plane blades, $1,000,000.

Mich., Midland—PLANT—Dow Chemical Co., Midland, 4 story, 100x200 ft., brick, steel, styron mfg. plant addn. $500,000.

▲ **Mich., Port Huron**—PLANT—Premier Pulp & Paper Co. of Canada, Sarnia, Ontario, Canada, paper processing plant, incl. pipe line under St. Clair River from Canada. $10,000,000.

Mo., North Kansas City—PLANT—Stern-Slegman-Prins Co., Armour Rd. and Iron St., plans by Klivett & Myers, 1016 Baltimore Ave., Kansas City, Mo., garment mfg. plant. $750,000.

▲ **N. Y., Hicksville**—SHOPPING CENTER, etc.—Hicksville Store Center, Inc., c/o A. H. Salkowitz, archt., 37-60 82 St., Jackson Heights, retail shopping center, incl. department store, 2 super markets and 30 retail stores, Broadway. $1,000,000.

N. D., Grand Forks—OIL REFINERY—Standard Oil Co. of North Dakota, Dacotah Hotel Bldg., oil refinery. Approx. $300,000. (Correction—owner's address). CD 9/22.

▲ **Pa., Morrisville**—STEEL MILL—Carnegie-Illinois Steel Co., c/o U. S. Steel, Carnegie Bldg., Pittsburgh, plans steel mill on Delaware River, Falls Twp. $200,-000,000. Austin Co., 16112 Euclid Ave., Cleveland, O., engrs. CD 12/30.

▲ **Pa., Pottstown**—PLANT, OFFICE—Doehler-Jarvis Corp., Pottstown, plant and administration office. $4,000,000.

▲ **S. C., Union**—TEXTILE PLANT—United Merchants & Manufacturers, Inc., 1412 Broadway, New York, N. Y., textile mfg. plant. $15,000,000.

▲ **Tex., Beaumont**—PLANT—Texas Gulf Sulphur Co., 1st Federal Saving & Loan Bldg., huge sulphur mining plant. $5,000,000.

▲ **Tex., Ganado-Edna**—PLANT—National Aluminum Reduction Co., Boulder, Colo., aluminum mfg. plant. $50,000,000.

▲ **Alta., Exshaw**—PLANT—Canada Cement Co., Exshaw, plant addn., new kiln, incl. bldg. for employees containing living quarters, cafeteria, billiards and bowling rooms, barber shop and auditorium. $5,000,000.

▲ **B. C., Vancouver**—SMELTER—Vancouver Rolling Mills Ltd., D. D. Hobbs, pres., 490 S. E. Marine St., pig-iron smelter. Approx. $2,500,000.

▲ **N. B., St. John**—PULP MILL—Maritime Pulp & Paper Corp., Loyalist Bldg., Fredericton, pulp mill, $45,000,000. Stadler & Assocs., 1117 Ste Catherine St. W., Montreal, Que., engrs.

▲ **N. S., Sydney**—MILL—Dominion Steel & Coal Corp. Ltd., Sydney, blooming mill addn. Approx. $2,-500,000.

▲ **Ont., Sarnia**—PLANTS—Imperial Oil Ltd., 56 Church St., Toronto, remodeling Plants One and Two at Sarnia Oil Refinery, new catalytic cracking units. $25,000,000.

▲ **Ont., Sarnia**—REFINERY—Sun Oil Co. Ltd., 29 Basin St., refinery, St. Clair Rd. $40,000,000. CD 9/6/49.

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CONSTRUCTION REPORTS—Second Section

WATER SUPPLY

BIDS ASKED

Ala., Mobile—B.A. 12/6—City, Division A, Big Creek Water Supply Project. Plans deposit $25. J. B. Converse & Co., 106 St. Joseph St., engrs.

LOW BIDDERS

▲ **Pa., Chester**—Chester Municipal Auth., 5 and Welsh Sts., Nov. 16, reservoirs addns., alterations, various locations, from Virginia Eng. Co., 80 W. 29 St., Newport News, Va., $2,133,000. CD 10/19.

SEWERS, WASTE DISPOSAL

BIDS ASKED

O., Macedonia—B.A. 12/6—Dpt. P. Welfare, John H. Lamneck, dir., 534 E. Rich St., Columbus, Zone 15, rerouting sanitary sewer at Hawthornden State Hospital.

LOW BIDDERS

▲ **Ill., Cicero**—Town Town Hall, sewerage sys. exten., from Jas. McHugh & Sons Co., 6449 S. South Park Ave., Chicago, Zone 37, $2,439,413. CD 11/10.

CONTRACTS AWARDED

▲ **Wash., Tacoma**—City, City Hall, primary treatment plant with capacity of 27 mg per day, to Hoagland-Findlay Eng. Co., Dexter Horton Bldg., Seattle, Zone 4, $1,326,920. Bids 11/6. CD 11/10, under LB.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

December 7	Texas
Oklahoma	December 13
December 12	California
Florida	

New Jersey—B.A. 12/5—New Jersey Turnpike Auth., 65 Prospect Ave., Trenton.

Union Co.—Contr. 66, substructures and superstructures 2 bridges on North Avenue over Turnpike, Plans deposit $5. Amann & Whitney, 185 Raymond Blvd., Newark, engrs. CD 7/13/49, under Streets and Roads.

▲ **Neb., Omaha**—B.A. 12/19—Omaha-North Omaha Bridge Assn., 2912 Ames Ave., bridge over Missouri River, $2,000,000. Harrington & Cortelyou, 1004 Baltimore St., Kansas City, Mo., engrs. R. F. Ferguson, 3313½ S. 14 St., assoc. engr. CD 9/6.

CONTRACTS AWARDED

▲ **New Jersey and Pennsylvania**—Delaware River Joint Toll Bridge Comm., 526 Broad St. Bank Bldg., Trenton 8, N. J., constr. Trenton approach to Delaware River bridge from Morrisville Pa. to Trenton, N. J., to George M. Brewster & Son, Inc., 275 W. Fort Lee Rd., Bogota, N. J., $1,466,234. Bids 11/9. CD 11/13, under LB.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

December 5	December 12
Maryland	Maryland
Massachusetts	New Jersey
December 7	Texas
Oklahoma	December 13
December 8	California
Nova Scotia	Louisiana
December 11	Texas
Nova Scotia	December 14
	California

N. J., Toms River—B.A. 12/6—Bd. Freeholders, Ocean Co., Toms River road resurf, Stafford Twp., Approx. $60,000. J. C. Pennington Toms River, engr.

† **Alaska**—B.A. 12/12—Bureau Pub. Roads, Dpt. Commerce, Juneau, clearing, grubbing, grading, tunnel and draining 7.54 mi. Seward-Anchorage Hy., Sect B1, between Mile Posts 40.3 and 58. Plans deposit $10. CD 9/17/49.

† **N. C., Camp LeJeune**—B.A. 12/15—Pub. Wks. Office, Bldg. 1005, Marine Barracks, construct 8 concrete tank road crossings at the Marine Barracks, Spec. No. 26916. Plans deposit $10.

LOW BIDDERS

▲ **New Jersey**—New Jersey Turnpike Auth., Trenton, Nov. 17, Contr. 64, paving and drainage from Morse's Creek in Union Co. to Kearny, Hudson Co., from Gulf Contg. Co., 33-151 Lawrence St., Flushing, N. Y., and Tully & Di Napoli, Inc., 20-11 12 St., Long Island City, N. Y., b. conc., $5,632,694 with H shoulders to $5,661,495 with G shoulders to $5,805,495 with F shoulders; c. conc. $6,323,995, $6,352,795 and $6,496,795 respectively. CD 10/25.

CONTRACTS AWARDED

▲ **New York**—Bureau Contracts & Accounts, Albany, reconstruct 4.98 mi. Route 17 from Vestal to 4½ mi. west of Binghamton, Broome Co., to Binghamton Constr. Co., Inc., Marine Midland Bldg., Binghamton, $687,183***7 mi. new highway to connect existing town highways, on north side of New York City projected Pepacton Reservoir, Delaware Co., to Dan Bar Constr. Co., 220 Pulawski St., Syracuse, $1,073,992***construct 6.53 mi. State Thruway in Port Byron-Jordan vicinity, incl. 5 bridge structures, Cayuga and Onondaga Counties, to Tomlinson Constr. Co. Ltd., 21 King St., Toronto, Canada, $1,771,820. Grand total $3,532,995. Bids 10/11. CD 10/17, under LB.

EARTHWORK, WATERWAYS

BIDS ASKED

† **Minnesota**—B.A. 12/5—U. S. Eng., 1217 U. S. P. O. and Custom House, St. Paul, Zone 1, removing section of lower guard wall and repair of lower guide wall, Lock and Dam 1, on right bank of Mississippi River, downstream from Ford Rd. Hy. Bridge in Minneapolis. Extended date; adv. ENR 11/30. CD 11/3.

New York—B.A. 12/6—Dpt. P. Wks. Albany, 170 ft. concrete approach wall to connect on west of existing wall of dry dock on Barge Canal at Waterford, Saratoga Co. $77,729.

† **Idaho**—B.A. 12/7—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., first stage construction for Albeni Falls dam, Oreille River in Bonner Co., near Newport, incl. rock excav. and cofferdams, Serial No. CIVENG-45-108-51-25. CD 9/12/44.

† **California**—B.A. 12/12—Bureau Reclamation, Dpt. Interior, Lindsay, earthwork, pipe lines, structures, lateral 93.2 W, Station 0 plus 00 to Station 357 plus 91 and laterals 93 2 E Station 0 plus 00 to Station 123 plus 72 and sublaterals Lindmore Irrigation Dist., Friant-Kern Canal, Distribution Systems, Central Valley Proj., Spec. DC-3236. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

† **California**—B.A. 12/14—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Lindsay, pump. units for Trauger Pumping Plant, Lindsay-Strathmore Irrigation Dist., Central Valley Proj., Spec. DS-3240. L. N. McClellan, ch. engr.

CONTRACTS AWARDED

▲ † **Washington**—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, second-stage construction of Chief Joseph Dam, Bridgeport, Serial No. CIVENG-48-108-51-12, to L. E. Dixon Co., 409 California St., San Gabriel, Calif., Arundel Corp., Pier 2, Pratt St., Baltimore, Md., Hunkin-Conkey Constr. Co., 1740 E. 12 St., Cleveland, O., and American Pipe & Constr. Co., 4635 Firestone St., Southgate, Calif., $25,967,921. Est. $23,870,907. Bids 11/9. CD 11/14, under LB.

AIRPORTS

BIDS ASKED

† **D. C., Wash.**—FIRE ALARM SYSTEM—B.A. 12/6—Pub. Wks. Office, Potomac River Naval Command, Naval Gun Factory, replacing fire alarm system, etc. at Naval Air Station (Anacostia), Spec. 25208. Plans deposit $10.

† **Fla., Key West**—BUILDINGS, etc.—B.A. 12/7—U. S. Navy, Charleston Naval Base, Charleston, S. C., 1 story, 26x102 ft., concrete bldg., 1 small office bldg., parking area and water lines at Naval Air Station, NOY 23305, Spec. 25226. Plans deposit $5.

LOW BIDDERS

▲† **Alaska**—AGGREGATE—U.S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, Nov. 16, supplying aggregate, central mixed concrete, batched aggregate and cement for project construction jobs, Ladd and Eielson Air Force Base, Inv. No. S 95-507-51-27, from Otto B. Ashbach & Sons, Inc., 743 Ivy Ave. W., St. Paul, Minn. $1,061,105. Est. $1,512,997. CD 11/1.

CONTRACTS AWARDED

▲ **Conn., Windsor Locks**—TERMINAL—State, R. S. Thatcher, comptroller, 114 State Office Bldg., Hartford, terminal bldg. at Bradley Field, to Associated Constr. Co., 1010 Wethersfield Ave., Hartford, $1,845,000. Bids 10/11, awarded 11/6. CD 10/25, under LB.

PUBLIC BUILDINGS

BIDS ASKED

N. Y., Carmel—COUNTY OFFICE—B.A. 12/4—Bd. Supervs. Putnam Co., Main St., county office bldg. addn., Main St. $300,000. Plans deposit $50. J. M. Berlinger, 17 E. 47 St., New York Zone 17, archt.

† **N. Y., New York**—OFFICE REVISIONS—B.A. 12/4—General Services Admin., Pub. Bldgs. Service, 250 Hudson St., Zone 13, revisions to second and seventh floors of office bldg., 252 Seventh Ave.

Ind., Frankfort—HOSPITAL—B.A. 12/5—Bd. Trustees Clinton County Hospital, K. Holloway, chn., Court House, 3 story, 125x192 ft., brick, stone, rein.-con., structural steel hospital addn. and remodeling, $925,000. Plans deposit $25. Rodney W. Leonard, 56½ E. Washington St., archt. Bevington, Taggart & Fowler, 730 K. of P. Bldg., Indianapolis, mech. engrs. CD 10/2.

Ind., South Bend—SCHOOL—B.A. 12/5—Clay Twp. High School East Side, 2 story, bsmnt., high school, $500,000. Roy Worden, 312 W. Colfax St., archt.

▲ **N. Y., Woodside**—SCHOOL—B.A. 12/5—Supt. School Buildings, Design & Constr., 49 Flatbush Ave. exten., Brooklyn, Zone 1, general contract; plumbing and drainage; heating and ventilating; electrical work and lighting fixtures for P.S. 11, Skillman Ave., from 56 to 54 Sts. $1,619,200. Plans deposit $16 general contract; plumbing and drainage, and heating and ventilating $5 each, electrical work and lighting $8. CD 10/15/48.

Va., Fairfax—COURT HOUSE—B.A. 12/5—Fairfax Co., Fairfax, 2 story, steel, concrete court house addn., to house 3 new courtrooms and new jail, Lee-Jackson Memorial Hy. and Chain Bridge Rd., $980,000. Robert H. Willgoos, 123 N. Fairfax St., Alexandria, archt. CD 6/15.

Fla., Pensacola—SCHOOL—BA.. 12/6—Escambia County Bd. P. Instruction, Pensacola, E. D. Beggs High School, $750,000 Yonge & Hart, 614 Blaundt Bldg., archts. CD 9/8, under LB

Ga., Jesup—HOUSING—B.A. 12/6—Jesup Housing Auth., c/o Abreu & Robeson, archts., 22 Marietta St. Bldg., Atlanta, 40 housing units, Proj. GA66-1. $300,000. Plans deposit $50.

Md., Baltimore—SCHOOL—B.A. 12/6—City Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, 2 story, 82x70 ft., 45x125 ft., brick, block, concrete, limestone. School 18 addn., Druid Park Dr. $400,000. Plans deposit $50. David Harrison, 421 St. Paul St., Zone 2, archt. Van Rensselaer Saxe, 100 W. Monument St., struct. engr. Egli & Gompf, 1019 N. Calvert St., mech. engrs. CD 8/21.

Okla., Edmond—STUDENT UNION—B.A. 12/6—State Bd. Educ., W. T. Doyel, secy., Capitol, Oklahoma City, Zone 5, student union bldg. $300,000. Plans deposit $30. Conner & Pojezny, Kerr-Mc Gee Bldg., Oklahoma City, archts.

Pa., Cresson—MEDICAL SERVICE UNIT—B. A. 12/6—General State Auth., 18 and Herr Sts., Harrisburg, general contract heating, plumbing and electrical work for construction medical service unit at Tuberculosis Sanitorium 2. $300,000. Horace A. Bailey, 540 Central Ave., Johnstown, archt.. A. F. Jones, c/o owner, ch. engr. CD 11/1, under LB.

Man., Shilo—BARRACK BLOCK—B.A. 12/6—Canadian Commercial Corp., engrs., 70 Lyon St., Ottawa, Ont., Barracks blocks at Camp Shilo, for Govt. of Canada, Dpt. National Defence (Army) Ottawa, Ont. $500,000. Plans deposit $100. CD 7/31.

Ont., Camp Borden—BARRACK BLOCK—B.A. 12/6—J. D. McCarthy, secy. Canadian Commercial Corp., 70 Lyon St., Ottawa, Barrack Block 2 and Mess 1, (Army), Tender G 23-B-3-52 $575,000. Plans deposit $100.

Ont., Petawawa—BARRACK BLOCK—B.A. 12/6—J. D. McCarthy, secy. Canadian Commercial Corp., 70 Lyon St., Ottawa, Barrack Block No. 3, Mess 1 and R.C.E.M.E. Workshop (Army) at Military Camp, Tender No. G23-P-1-42, Approx. $800,000. Plans deposit $100.

▲ **Ala., Auburn**—DORMITORY—B.A. 12/7—Alabama Polytechnic Institute, c/o H. L. Holman, Jr., Ozark, and Van Keuren, Davis & Co. American Life Bldg., and Pembleton & Mims, Title Guarantee Bldg., archts. men's dormitory, $1,000,000. CD 10/27.

Pa., Farrell—HOUSING—B.A. 12/7—Mercer County Housing Auth., George J. Vermeire, exec. dir., 37 Spearman St., 17 buildings, comprising 100 dwelling units, incl. one bldg. to be used as community bldg., etc. to be known as Steel City Terrace Exten., Proj. PA-20-2 incl. paving, curbs, sidewalks, etc. Plans deposit $50. Clepper & Malforie, 72 Vine Ave., Sharon, archts. Bids 9/21 rejected, L.B. $991,269. CD 9/28, under LB.

† **N. J., Edgewater**—BUILDING RAMPS—B.A. 12/8—Third Naval Dist., Federal Office Bldg., 90 Church St., New York, N. Y., installing ramps at Bldgs. 3 and 4 Naval Supply Depot, Spec. 28862.

Minn., Willmar—POWER PLANT—B.A. 12/11—City, E. H. Brogren, clk., furnish, erect municipal power plant, steam engineering unit, auxiliary equip., etc. $400,000. Plans deposit $35. Pfeifer & Shultz, 703 Wesley Temple Bldg., Minneapolis, engrs.

Tex., Wichita Falls—DWELLINGS—B.A. 12/11—Wichita Falls Housing Auth., B. D. Donnell, chn., Wichita Falls, 150 dwelling units in 70 bldgs., administration bldg., and site improvs., incl. street, walks, sewer, water, gas, electric distr. $900,000. Plans deposit $50. Boese & Harkrider, 308 T & P Bldg., Fort Worth, archts. Carter & Burgess, Century Bldg., Fort Worth, engrs. CD 10/28/49.

▲ **California**—GENERATOR—B.A. 12/12—Bureau Reclamation, Dpt. Interior, Bldg. 1-A Denver Federal Center, Denver Colo., generators for Folsom Power Plant, Central Valley Proj., Spec. DC-3204. Extended date. CD 9/29.

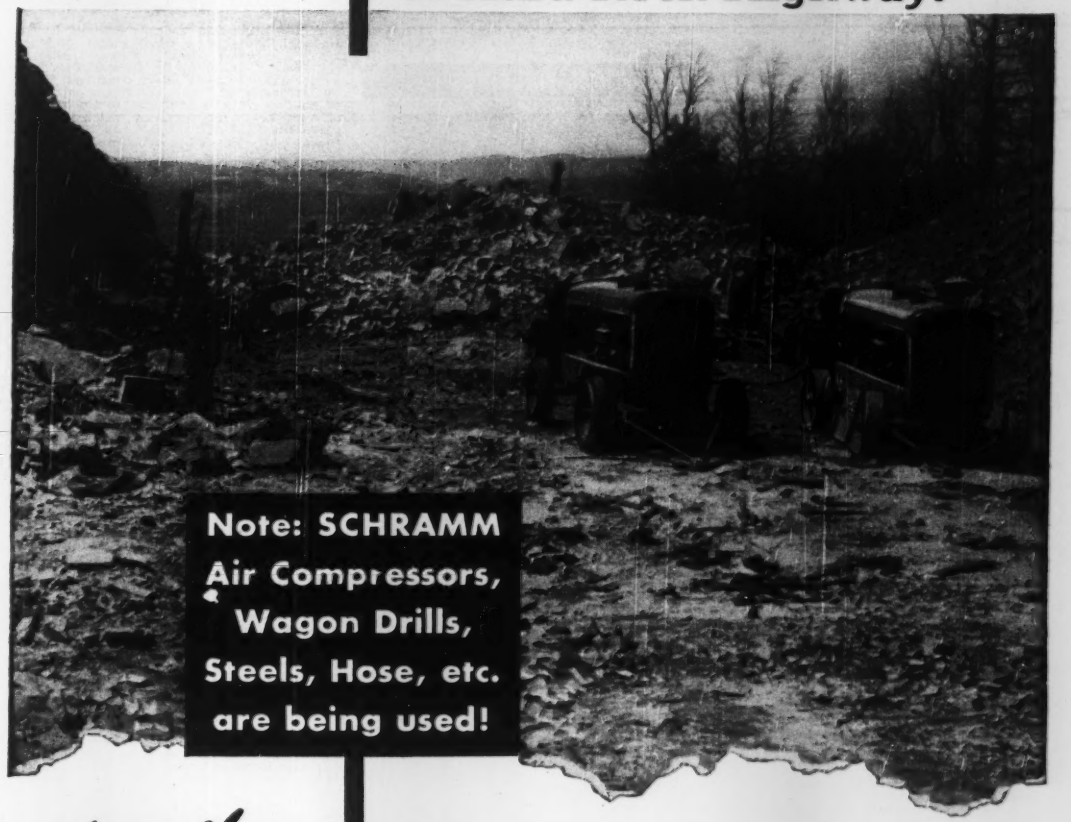
Tex., Dublin—HOUSING—B.A. 12/12—Dublin Housing Auth., Dublin, 50 low rental brick housing units, concrete slab fdn. $375,000. Plans deposit $50. Broad & Nelson, 505 N. Ervay St., Dallas, archts. Paul G. Bentley, 1042 Natl. City Bldg., Dallas, engr. CD 11/13.

Tex., Eagle Lake—SCHOOL—B.A. 12/12—Eagle Lake Independent Schoo Dist., Eagle Lake, school $350,000. Page Southerland & Page, 602 West Ave., Austin, archts. CD 11/1, under LB.

▲ **Calif., Alameda**—SCHOOL—B.A. 12/14—Alameda Bd. Educ., 2267 Alameda St., Encinal High School.

(Continued on page 62)

The Job: Removing 140,000 Cu. Yds. of Hard Rock Highway.



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(Continued from page 60)

$1,000,000. Plans deposit $50. Ernest J. Kump, 262 California St., San Francisco, archt. CD 11/8, under LB.

Calif., Merced—HOUSING—B.A. 12/14—Mercer Co. Housing Auth., 3 and T Sts., housing, Project Calif 23-1 at Site Nos. 1 and 2. $300,000. Plans deposit $50. Robt R. Jones, 1723 M St., archt. CD 2/10.

LOW BIDDERS

▲ **Minn., Richfield**—SCHOOL—Bd. Educ., H. E. Rumpel, supt., Nov. 9, high school, 70 St. and Harriet Ave., from D'Arcy Leck Constr. Co., 2838 Stevens Ave., Minneapolis, $1,521,000. CD 11/1.

▲† **Wash., Richland**—LABORATORY—General Electric Co., prime contractor to U. S. Atomic Energy Comn. for operation of Hanford Works, Richland, Nov. 8, 2 story, 122x217 ft., rein.-con., steel laboratory, from Sound Constr. Co., 1300 Aloha St., Seattle, $1,154,203. CD 9/28.

CONTRACTS AWARDED

▲ **Calif., Salinas**—HOSPITAL—Salinas Valley Memorial Hospital Dist., Court House, 5 story, bsmnt., structural steel, reinforced light weight concrete hospital, to Parker, Steffens & Pearce, 135 S. Park St., San Francisco, $2,305,600. Bids 11/9. CD 10/5.

▲ **Minn., St. Paul**—HOUSING—St. Paul Housing & Development Auth., I. Karon, exec. dir., 1745 City Hall and Court House, three hundred and twenty unit 68 two story, bsmnt., Franklin Roosevelt Housing, Kennard St., Maryland and Hazelwood Aves., to Hagstrom Constr. Co., 1567 Selby Ave., $3,194,000. Bids 10/24. CD 10/26, under LB.

▲† **N. M., Los Alamos**—BUILDINGS—U. S. Atomic Energy Comn., Los Alamos, Group 140, TA-16, Project F, concrete buildings, Inv. No. 291-51-25, to Robert E. McGee General Contractor, Inc., Box 1716, Santa Fe, $1,233,000. Bids 11/9. CD 11/20, under LB.

▲ **Pa., Phila.**—SCHOOL—Bd. Educ., 21 and Winter Sts., general contract Widener Memorial Public School, to John McShain, Inc., 17 and Spring Garden Sts. $1,401,900. Bids 9/1. CD 8/22.

▲ **Tex., Corpus Christi**—HOSPITAL—Driscoll Foundation Children's Charity Hospital, Driscoll Bldg., 100-bed childrens hospital, to Linbeck Constr. Co., 1932 Peden St., Houston, $2,877,402. Bids 11/9. CD 11/14, under LB.

▲ **Tex., Terrell**—DORMITORIES—Board for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, mens and womens dormitories wings to T. C. Bateson Constr. Co., Irwin-Keasler Bldg., Dallas, $574,935 and $513,865 respectively. Bids 11/9. CD 11/14, under LB.

▲ **Ont., Windsor**—TURBINE GENERATOR—Hydro-Electric Power Comn. of Ontario, 620 University Ave., Toronto, turbine generator for steam electric plant to English Electric Co. Ltd., George St., St. Catherines, $10,000,000. Awarded 11/2. H. G. Acres & Co., 2136 Cuip St., Niagara Falls, engrs. CD 4/19/48.

COMMERCIAL BUILDINGS

BIDS ASKED

Md., Baltimore—SCHOOL—B. A. 12/5—Maryland School for the Blind, 3501 Taylor Ave., 2 story, 46x142 ft., school, 1 story, 66x125 ft., brick, steel, concrete gyminasium. Edmunds & Cates, 130 W. Hamilton St., archts. CD 2/27.

▲ **Tex., Temple**—OFFICE, etc.—B. A. 12/14—First Natl. Bank, Temple, 10 story masonry office and bank bldg. Approx. $1,000,000. Plans deposit $50. Wyatt C. Hedrick Co., 1005, First Natl. Bank Bldg., Fort Worth, to Jan. 1, archt. CD 9/22.

▲ **Calif., Presidio of San Francisco**—HOUSING—Bids Asked—Dpt. Army, South Pacific Division, Oakland Army Base, Oakland, 14, Calif., construct, manage and finance 500 housing units.

Ill., Chicago—SCHOOL—Bids Asked—St. Carthage Parish, 7315 S. Yale St., 2 story, brick, stone school. Barry & Kay, 53 W. Jackson St., archts.

N. Y., Brooklyn—SYNAGOGUE, etc.—Bids Asked—B'Nai Israel Synagogue Center of East Flatbush, 1114-18 Clarkson Ave., Zone 12, 1 story synagogue and school, 9517-37 Kings Hy. $275,000. CD 9/11.

Pa., Phila.—APARTMENT—Bids Asked—Wayne-Coulter Corp., 1510 Samsom St., apartment Wayne and Coulter Sts. $700,000. Street & Schwartz, 5450 Wissahickon Ave., archts. Dorfman & Bloom, 1411 Walnut St., engrs.

CONTRACTS AWARDED

▲ **Calif., Whittier**—DWELLINGS—R & W Constr. Co., 8330 W. 3 St., Los Angeles, 156 frame, stucco dwellings in Tract No. 15043. Owner builds., $1,170,000. Presnell Assocs., 1501 Mission St., South Pasadena, archts.

▲ **Mich., Royal Oak**—HOUSING—First Michigan Cooperative Housing Co., Fred B. Collier, 21329 Woodward St., Ferndale, 144 single houses, Barrett, Hudson, Brockton, Dallas and Kalam in Lincoln Rd. area, to S. F. Brothers Contg. Co., 21329 Woodward St., Ferndale. Approx. $1,500,000.

▲ **Minn., Duluth**—SHOPPING CENTER—H. Shanedling Sons Corp., 425 Palace Bldg., Minneapolis, general contract shopping center, 12 Ave. E. and Superior St., to J. D. Harrold Co., 405 E. Superior St., $1,000,000. Orrfalt & Bach, Lyceum Bldg., archts.

▲ **O., Columbus**—APARTMENTS—Parklawn Manor, c/o Thibals, Crumley & Musson, archts., 695 E. Broad St., apartment, incl. 156 houses with 348 apartments on 42 acre site, E. Broad St. and Bagshaw Rd., to Columbus Southern Development Corp., 1566 Doone St., Approx. $3,000,000. John Clifton, in charge of constr. for owner, engr.

▲ **Tex., Randolph Field (San Antonio)**—HOUSING—Dpt. of Air Force, Fourth Army Headquarters, Fort Sam Houston, construct, manage, finance 600 masonry housing units, to Murchison Brothers, 1315 Pacific St., Dallas, $5,000,000. Walter W. Ahlschlager, 212 S. St. Paul St., Dallas, archt. R. Marvin Shipman, 146 W. Olmos St., San Antonio, engr. CD 11/1, under LB.

INDUSTRIAL BUILDINGS

BIDS ASKED

Ont., Toronto — FACTORY, etc. — B.A. 12/4 — Owner, c/o P. Alan Deacon, archt., 1016 Eglinton Ave. W., two bldgs., 1 story, 150x300 ft. factory and office section, 1 story, 100x100 separate paint shop. $400,000. CD 8/29.

CONTRACTS AWARDED

▲ **La., New Orleans**—TWINE MILL, etc.—International Harvester Co., 180 N. Michigan St., Chicago, Ill., general contract twine mill and office on 10 acre tract on Mississippi River at Dufossat St., to R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., Approx. $2,000,000. George P. Rice, Audubon Bldg., archt. CD 12/3/47.

▲ **Tex., Snyder**—PLANT—Sunray Oil Co. & Associated Operators, Philtower Bldg., Tulsa, Okla., gas conservation and natural gasoline plant, own forces. Approx. $5,575,000. CD 8/10.

▲ **Alta., Calgary**—PLANT—Canadian Industries Ltd., 1135 Beaver Hall Hill, Montreal, Que., explosives plant, to Poole Constr. Co. Ltd., 2402 2 St., Approx $3,000,000.

UNCLASSIFIED

BIDS ASKED

Colorado—RURAL DISTRIBUTION LINES—B.A. 12/6—K. C. Electric Assn., Hugo, 520.77 mi. rural distr. lines, 4.35 mi. conversion and 14.16 mi. removal in Kit Carson, Cheyenne and Yuma Counties. $560,000. C-B Eng. Co., 25 S. Grove St., Denver, engrs.

Que., Etang Du Nord—HARBOR IMPRVS.—B.A. 12/6—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., harbor imprvs. Approx. $100,000. Plans deposit $25. R. Blais, c/o owner, engr. CD 3/3.

† **Fla., Daytona Beach**—FENCE—B.A. 12/7—Yards & Docks Annex, Arlington, Va., security steel fence, Naval Reserve Training Center, NOY 21915, Spec. 24893. Plans deposit $10.

Va., Warsaw—POWER PLANT—B.A. 12/8—Town, construction and operation of electric power plant. $100,000.

† **California**—PUMPING PLANT—B.A. 12/14—Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver Federal Center, Denver, Colo., twelve 360 gpm motor-driven vertical shaft, turbine-type pumping units, for Trauger Pumping Plant, Lindsay-Strathmore Irrigation Dist., Central Valley Proj., Spec. DS 3240, L. N. McClellan, Bldg. 1 A, Denver Federal Center, Denver, Colo., ch. engr.

LOW BIDDERS

▲ **Conn., Hartford**—RAILROAD FACILITIES, etc.—State Regional Marketing Auth. State Capitol, B/A-HH1/8 and C, Merchants Bldg., paving and constr. railroad facilities, Part 1, from Pearson Co., Inc., 15 Boylston Pl., Brookline, Mass., $278,692; Parts II and III, from The Brooklawn Constr. Co., 254 Prospect Ave., Hartford, $732,326 and $1,118,226 respectively. CD 9/14.

SEARCHLIGHT SECTION

OFFICIAL PROPOSALS

Bids: December 11, 1950 (201)

Furnishing and Delivering Mechanical Joint Cast Iron Pipe

WASHINGTON SUBURBAN SANITARY COMMISSION

CONTRACT NO. 888-W

Sealed proposals for furnishing and delivering forty-thousand (40,000) lineal feet of 6-inch; forty-thousand (40,000) lineal feet of 8-inch and ten-thousand (10,000) lineal feet of 10-inch mechanical joint cast iron water pipe, Class 150, including necessary gaskets, glands and bolts will be received in the office of the Purchasing Agent, Room 3, of the Washington Suburban Sanitary Commission, Hyattsville, Maryland until 10:00 A. M. Eastern Standard Time on Monday, December 11, 1950 at which time and place they will be publicly opened and read.

Specifications may be obtained from W. R. Douglas, Purchasing Agent of the Commission, Hyattsville, Maryland.

Dwight B. Galt, Chairman
Warren Browning
Leland G. Worthington
Commissioners

SEARCHLIGHT SECTION

OFFICIAL PROPOSALS

Bids: December 19, 1950 (203)

Sewage Treatment Works

Sealed proposals will be received by the Borough Manager of the Borough of Phoenixville, Chester County, Pennsylvania, at the Council Chamber in Phoenixville until 8:00 o'clock P.M. (Eastern Standard Time) on December 19, 1950, for the construction of alterations and additions to the existing sewage treatment works at which time and place the bids will be publicly opened and read aloud. The work will be divided into four (4) contracts designated as follows:

Contract No. 1—Structural Work
Contract No. 2—Mechanical Work
Contract No. 3—Electrical Work
Contract No. 4—Heating and Ventilating Work

The work under Contracts 1 and 2 may be awarded to one contractor.

Copies of plans, specifications and other contract documents are on file and open to public inspection at the office of Albright & Friel Inc., Consulting Engineers, 121 S. Broad Street, Philadelphia 7, Pennsylvania, and at the office of the Borough Manager in the Borough Hall, Phoenixville, Pennsylvania and sets of the documents may be obtained at the office of the Consulting Engineers or at the office of the Borough Manager upon a deposit of $40.00 for each set of documents.

If the documents are not returned in good condition within five days after the opening of bids, the full amount of the deposit for one set will be returned to each actual bidder; and other deposits will be refunded with a deduction of $20.00 to defray the actual cost of reproduction of the sets of documents. If the documents are not returned within the time stated, the entire amount of deposit will be forfeited.

A certified check or bid bond drawn to the order of the Borough of Phoenixville to five per cent (5%) of the amount of bid must be attached to the proposal.

No bid may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Borough of Phoenixville reserves the right to waive any informalities in or to reject any and/or all bids.

BY ORDER OF BOROUGH COUNCIL.
JOHN T. BUSH
ACTING BOROUGH MANAGER

November 13, 1950.

U. S. Government

Department of Commerce, Bureau of Public Roads, November 21, 1950. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 A.M., E.S.T., December 13, 1950, for Project IPI-1611, Baltimore-Washington Parkway, Prince Georges and Anne Arundel Counties, Maryland. Grading, Drainage, and other work. Length 3.464 miles. The approximate quantities of the more important items are as follows: 125 acres Clearing and Grubbing, 1,106,500 cu. yd. Excavation, 19,000,000 station yards Overhaul, 1,200 cu. yd. Cement Concrete, and 8,950 lin. ft. Concrete Culvert Pipe. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or CERTIFIED check made payable to the Treasurer of the United States, will be required to insure their return within 15 days after the opening of bids. Plans, specifications, and proposal forms may be obtained at the address given above. H. J. Spelman, Division Engineer.

(193)

(Continued on page 63)

CONTRACTORS
Watch this Section
for New Projects

Publish your announcement thru the "Proposals Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS
(Continued from page 62)

Bids: December 11, 1950 (200)

Furnishing and Delivering Mechanical Joint Cast Iron Pipe (Cement Lined)

WASHINGTON SUBURBAN SANITARY COMMISSION

CONTRACT NO. 889-W

Sealed proposals for furnishing and delivering ten-thousand (10,000) lineal feet of 12-inch; three-thousand (3,000) lineal feet of 16-inch; two-thousand (2,000) lineal feet of 20-inch and one-thousand (1,000) lineal feet of 24-inch Class 150 Mechanical Joint Cast Iron Pipe, Cement Lined, including necessary gaskets, glands, and bolts will be received in the office of the Purchasing Agent, Room 3 of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland until 10:30 A. M. Monday, December 11, 1950 at which time and place they will be publicly opened and read.

Specifications may be obtained from W. R. Douglas, Purchasing Agent of the Commission, Hyattsville, Maryland.

Dwight B. Galt, Chairman
Warren Browning
Leland G. Worthington
Commissioners

Bids: December 11, 1950 (199)

Furnishing and Delivering Cast Iron Mechanical Joint Fittings

WASHINGTON SUBURBAN SANITARY COMMISSION

SEALED PROPOSAL

Sealed proposals for furnishing and delivering three-hundred (300) tons of Standard Mechanical Joint Fittings and accessories will be received in the office of the Purchasing Agent, Room 3, of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland until 11:00 A. M. Eastern Standard Time on Monday, December 11, 1950 at which time and place they will be publicly opened and read.

Specifications may be obtained from W. R. Douglas, Purchasing Agent of the Commission, Hyattsville, Maryland.

Dwight B. Galt, Chairman
Warren Browning
Leland G. Worthington
Commissioners

U. S. Government

Sealed bids will be received in the office of the Engineering and Construction Director, The Panama Canal, Balboa Heights, Canal Zone, until 10:00 A.M. Eastern Standard Time, December 22, 1950, for furnishing all plants, tools, equipment of sites and construction of utilities, pavements, and buildings for Townsite Extension at Diablo Heights, Canal Zone. Twenty-two masonry type buildings are included in this project.

Copies of plans and specifications may be obtained from the Engineering and Construction Director, Balboa Heights, Canal Zone. Requests should be accompanied by a $40.00 deposit for each set, the deposit to be in the form of a United States money order or certified check payable to "Treasurer, The Panama Canal, Balboa Heights, Canal Zone." The plans and specifications may be inspected at the following places: The Panama Canal, 411 10th St., N. W., Washington 25, D. C. Office of the Inspector in Charge, The Panama Canal, 804 Customs House, Philadelphia 6, Pa. Office of the District Engineer, U. S. Engineer's Office, 4735 E. Marginal Way, Seattle 4, Washington. Office of the District Engineer, U. S. Engineer's Office, 751 S. Figuera St., Los Angeles 55, Calif. Office of the District Engineer, U. S. Engineer's Office, 909 17th St., Denver 2, Colorado. Office of the Inspector in Charge, The Panama Canal, Room 1020, 24 State Street, New York 4, N. Y. Office of the Inspector in Charge, The Panama Canal, Room 863, U. S. Custom House, 610 S. Canal St., Chicago 7, Ill. Office of the District Engineer, U. S. Engineer's Office, 180 New Montgomery St., San Francisco 19, Calif. Office of the District Engineer, U. S. Engineer's Office, 1709 Jackson St., Omaha 2, Nebraska. Office of the District Engineer, U. S. Engineer's Office, Foot of Prytania St., New Orleans, La. (202)

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Removal of Section of Guard Wall and Repair of Lower Guide Wall, Lock and Dam No. 1, Mississippi River, Minneapolis, Minnesota, will be received in this office until 2:00 P.M., C.S.T., December 5, 1950, and then publicly opened. Further information upon application. (194)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation, Sealed bids (Specifications No. DC-3244) will be received by Bureau of Reclamation, Ft. Collins, Colorado, December 19, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, concrete canal lining, and structures, Poudre Supply Canal, Windsor section, Colorado-Big Thompson Project, Colorado. The work is situated near Ft. Collins, Colorado. Principal items are approximately: 30,000 cu. yds. of excavation; 2,900 cu. yds. backfill; 1,750 cu. yds. concrete; furnishing and placing 235,000 lbs. of reinforcement; furnishing and handling 2,600 bbls. of cement; and other work. Time allowed for completion will be 300 days. For particulars, address Bureau of Reclamation, Ft. Collins, Colorado; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner. (195)

OFFICIAL PROPOSALS

Bids: December 13, 1950 (189)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and the Canal Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on December 13, 1950 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects; Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. NICKERSON, Dist. Engr., 333 Broadway, Albany, N. Y.				
Albany	FACT 50-3	Catskill Thruway	(Access) 3.24	Found. Cnc. Rob Grav. =	$108,000	$1,965,000 00
	FACT-C50-4	(Southern Blvd. to Western Avenue) Proj. UI 1009(3)	(Thwy.) 5.06	4.62 mi. Grading = 0.24 mi. Misc. Work = 0.20 mi. (Access Rds. FC Rob Grav. = 3.24 mi.)	Plans $50	
Schenectady	M-98	Movable Dam 4 at Scotia & Movable Dam 5 at Rotterdam, Erie Canal	....	Replacing Gates at Dam 4 and Replacing Lower Gate at Dam 5	$17,000 Plans $10	$314,901 25
Greene	FAS SH50-12	Phoenicia-Stony Clove, Pt. 4 Project 2937(3)	1.63	Bit. D. S. T. Gravel 42½' Span I-Beam 21' Span Conc. Slab	$12,000 Plans $15	$214,000 00
		DISTRICT No. 2				
		L. KETCHUM, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Herkimer and Oneida	FAS SH50-9	Prospect-Herkimer Co. Line, Pt. 2 Oneida County Line-Wilmurt Proj. No. 8281 (1) and (2)	10.03	Asphalt Concrete, Optional	$55,000 Plans $50	$1,003,000 00
		DISTRICT No. 4				
		A. R. MULLIGAN, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Monroe	LOSP 50-1P	Lake Ontario State Park (Serv. Rds., etc)	4.49	Asp. Conc. Ty. 1A, Opt. = 7.98 mi.	$67,000 Plans $50	$1,222,000 00
	LOSP 50-2	way, Section A	(Pkwy.) 4.82	Cem. Conc. Pavt. = 0.01 mi. (Br.) D.S.T. Grad. Gravel = 1.32 mi. Alterations to Br. No. 1		
Ontario	FAC50-13	Canandaigua City: Main St. FAC49-7 Project U338(6)	1.42	Traffic Signal System	$800 Plans $10	$11,000 00
		DISTRICT No. 8				
		J. S. BIXBY, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Dutchess	FARC50-45	Barrytown-Red Hook-Rock City, S. H. 1312 Proj. F594(3)	1.76	Asphalt Conc. Type 1A, Optional	$18,000 Plans $15	$340,000 00
		DISTRICT No. 10				
		J. J. DARCY, Dist. Engr., Montauk Hwy. at Little E. Neck Road, Babylon, L. I., N. Y.				
Suffolk	NSP50-2	Northern State Parkway Extension	4.05	Furnishing & Planting Trees & Shrubs & Misc. Work	$2,200 Plans $15	$42,000 00
Suffolk and Nassau	NSP50-3 SSP50-3	Northern State Parkway Southern State Parkway	8.71	Chain Link Fence & Misc. Work	$4,500 Plans $15	$81,000 00

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the above mentioned Laws, as set forth in "Instructions to Bidders". When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation, Sealed bids (Specifications No. DC-3243) will be received by Bureau of Reclamation, Huron, South Dakota, December 14, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of the Huron-Armour-Gavins Point-Sioux Falls-Brookings transmission lines, Missouri River Basin Project, South Dakota. The work is situated in the southeastern portion of South Dakota. The lines will be 115-kv., 3-phase, single-circuit, wood-pole, H-frame type, approximately 300 mi. long. The work is divided into 4 schedules and bids will be considered on any one or all of the schedules. Time allowed for completion will be 240 days. For particulars, address Bureau of Reclamation, Huron, South Dakota; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner. (186)

(Continued on page 63)

READ THE OFFICIAL PROPOSAL COLUMNS OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS
(Continued from page 63)

Bids: December 19, 1950 (191)

Construction of Bridge

SECTION I.
INVITATION FOR BIDS.

Sealed bids for the construction of a bridge across the Missouri River at McKinley Street, Omaha, Nebraska, and approaches thereto, will be received by the Douglas County Nebraska North Omaha Bridge Commission at its office at 4514 North 30th Street, Omaha 11, Nebraska, until 11 A.M. C.S.T. on December 19, 1950.

The structure will be of steel and concrete construction, consisting of twelve piers and two abutments supporting six steel girder beam spans, three steel truss spans of the cantilever type and four riveted steel girder spans, with a total length between abutments of 1912.5 feet. The west approach will be approximately 530 feet long and the east approach approximately 28000 feet long, including a steel girder beam bridge, 221 feet long between abutments, over Pigeon Creek. The structures will provide a 26 ft. roadway with two 18 inch safety curbs and the approaches will generally provide a 24 ft. concrete paved roadway.

Separate bids will be taken on the foundations of the river structure as Part I, on furnishing superstructure steelwork as Part II, on erection of superstructure steelwork and completion of river structure as Part III and on the approaches as Part IV. Bidders may submit separate bids on any or all parts and may condition their bids on the award to them of two or more parts.

Each bid shall be accompanied by a certified check on a solvent bank, or a bid bond, payable to the Douglas County Nebraska North Omaha Bridge Commission, in an amount not less than 10% of the total of the bid, to be forfeited as liquidated damages if the bidder should fail to execute contract and provide bond within ten (10) days after notice of award of contract is mailed to him; otherwise to be returned to the bidder.

The Commission reserves the right to hold bids for thirty (30) days after closing time for their receipt, the right to reject any or all bids and to waive any informalities therein, and the right to award contract as may best serve the interests of the Commission.

Copies of plans and contract documents may be examined at the office of Harrington and Cortelyou, Consulting Engineers, 1004 Baltimore Avenue, Kansas City, Missouri, or at the office of Richard F. Ferguson, Associate Engineers, 313½ South 14th Street, Omaha, Nebraska, and may be secured from the former upon payment of $20.00 for each complete set of drawings and specifications. The full amount of any such payment for one set of documents will be refunded to each actual bidder and all other payments less a deduction of $10.00 for each separate set, to cover cost of reproduction, will be refunded upon return of documents in good condition within sixty (60) days after date of opening of bids.

H. L. Karrer, Chairman,
Douglas County Nebraska
North Omaha Bridge Commission.

Bids: December 12, 1950 (196)

Construction of Road & Bridge

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

BERKSHIRE VALLEY—OAK RIDGE ROAD & BRIDGE

Construction of Road and Bridge on Berkshire Valley—Oak Ridge Road from 1500' North of Cayuga Terrace to Moquis Trail in Jefferson Township, Morris County, Federal Aid Secondary Project No. S-115(1). Length 0.415 miles.

Estimated: 10,151 cu. yds. Roadway Excavation—Earth
504 cu. yds. Roadway Excavation—Rock
5,685 sq. yds. Macadam Found. & Inter. Course
293 tons Bituminous Concrete, Type "A" or "T"
1,250 lin. ft. Wire Rope Guard Rail
355 cu. yds. Class "B", "C" and "D" Concrete
5,688 lbs. Reinforcing Steel
18,329 lbs. Structural Steel

Bids for the above will be received at the office of the State Highway Department, Room 140 in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, December 12, 1950, at eleven o'clock (11:00 A. M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by Sections 2, 3 and 4, P. L. 521, 78th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 18-22 East Blackwell Street, Dover, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.05 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: December 16, 1950 (198)

Extension of Approved Wall

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Canal Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 6th day of December 1950, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the Extension of Approach Wall—Waterford Dry Dock, Saratoga County.

Contract No.	Name of Highway	Deposit for Plans	Bid Deposit	Dept. Estimate
M-99	Waterford Dry Dock	$10	$4,300	$77,729

Maps, plans, specifications, and estimates may be obtained at the office of the Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and may be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated below. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Canal Law, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: December 5, 1950 (188)

Highway and Guard Rails

CONTRACT 391

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, December 5, 1950, for Contract 391, for the construction of approximately 2¼ miles of bituminous macadam highway and appurtenances in the Town of Neversink, Sullivan county, New York, and for the replacement of about 15,500 linear feet of rustic timber guard rail with cable guard rail along Roads Nos. 1 and 6 of the highways around the Rondout reservoir in the Town of Wawarsing, Ulster county, New York, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of thirty thousand dollars ($30,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of $5.00 in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid, and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President. RUFUS E. McGAHEN, JAMES J. MORAN, Commissioners. Board of Water Supply. RICHARD H. BURKE, Secretary.

U. S. Government

Sealed bids will be received in the office of the Engineering and Construction Director, The Panama Canal, Balboa Heights, Canal Zone, until 10:00 A.M. Eastern Standard Time, December 14, 1950, for furnishing all plant, tools, equipment, materials, labor, and services and performing all work for the preparation of sites and construction of utilities, pavements, and buildings for Townsite Extension at Silver City, Canal Zone. Ninety-one masonry type buildings are included in this project.

Copies of plans and specifications may be obtained from the Engineering and Construction Director, Balboa Heights, Canal Zone. Requests should be accompanied by a $10.00 deposit for each set, the deposit to be in the form of a United States money order or certified check payable to "Treasurer, The Panama Canal, Balboa Heights, Canal Zone." The plans and specifications may be inspected at the following places:

The Panama Canal, 411 10th St., N.W., Washington 25, D. C. Office of the Inspector in Charge, The Panama Canal, Room 1624, 24 State Street, New York 4, New York. Office of the Inspector in Charge, The Panama Canal, 804 Customs House, Philadelphia 6, Pa. Office of the Inspector in Charge, The Panama Canal, Room 863, U. S. Custom House, 610 South Canal Street, Chicago 7, Ill.

Office of the District Engineer, U. S. Engineer's Office, 4735 East Marginal Way, Seattle 4, Washington. Office of the District Engineer, U. S. Engineer's Office, 751 S. Figueroa Street, Los Angeles 55, California. Office of the District Engineer, U. S. Engineer's Office, 909 17th Street, Denver 2, Colorado. Office of the District Engineer, U. S. Engineer's Office, 180 New Montgomery Street, San Francisco 19, California. Office of the District Engineer, U. S. Engineer's Office, 1709 Jackson Street, Omaha 2, Nebraska. Office of the District Engineer, U. S. Engineer's Office, Foot of Prytania Street, New Orleans, La. (187)

ENGINEERS

Major oil company operating in the Middle East requires graduate engineers in numerous classifications, including:

CIVIL
ASST. CIVIL
MECHANICAL
ASST. MECHANICAL
ELECTRICAL
COMMUNICATIONS
FIELD CONSTRUCTION

Positions cover various fields of specialization in the above classifications. Vacancies are for both experienced and inexperienced men. If interested write giving complete outline of experience, education and personal history.

P-8342, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

CIVIL ENGINEER with field and office experience to write architectural and civil specifications for building projects. Secure position with large organization. Salary commensurate with ability. Sverdrup & Parcel, Inc., 1118 Syndicate Trust Bldg., St. Louis 1, Missouri.

FLOOD CONTROL Engineer. Prefer engineer with general experience on water and flood projects and Corps of Engineers reports. Must be able to meet the public. Opportunity to affiliate with a progressive agency responsible for developing a sound State water control policy. Salary $4800 per year. P-8209, Engineering News-Record.

MANAGER-OPERATOR for natural gas system. Excellent opportunity for young engineer with gas experience. State age, experience, salary expected and when available. Write P. O. Box 155, Quitman, Miss.

STRUCTURAL ENGINEER, experienced in steel and reinforced concrete design, wanted by large, well established Architect-Engineer office located in the Pacific Northwest. Must be capable of assuming design responsibility for commercial and industrial buildings. P-8257, Engineering News-Record.

MECHANICAL ENGINEER with 10 to 15 years' experience in operating and office work for employment in the engineering of power and utility facilities for a large industrial plant in the Gulf Coast area. This is not a temporary construction position. P-8275, Engineering News-Record.

STRUCTURAL ENGINEERS, structural draftsmen and architectural draftsmen. Minimum of three years experience in structural designing and detailing for building projects. Office located in greater St. Louis area. Monthly salary, time and one-half for overtime, vacations, group insurance and retirement benefits. Submit complete resume to Personnel Director, Granite City Steel Company, Granite City, Illinois.

(Continued on the following page)

ENGINEERING

We anticipate increasing our engineering organization during the next several months for the design of Oil Refinery, Blast Furnace, Open Hearth, Steel Mill and Power Plants.

These men should be qualified as draftsmen, designers, checkers or higher engineering skills on design of piping, instrumentation, pressure vessels, structural steel, concrete, platework, heavy mechanical equipment and electrical.

If you are interested and have engineering design experience on this class of work, write to us for a personnel form for prompt consideration of your qualifications.

This work is in our Cleveland office, and is on a 5-day, 45-hour week basis, with time and one-half over 40 hrs; also, vacation and holiday pay. Steady employment and a good opportunity with a good organization.

ARTHUR G. McKEE & CO.
2300 Chester Ave.
CLEVELAND 1, OHIO

ASSISTANT MANAGER OF CONSTRUCTION

Wanted by national organization. A graduate engineer, experienced in all phases of chemical plant engineering and construction, and who has no objection to traveling. Give age, education, detailed experience, and salary expected.

Box ENR 926, 221 W. 41 St., N. Y. 18

Engineers Wanted

Civil—Electrical—Mechanical—Structural

***Apply* KAISER ENGINEERS**
Division of Kaiser Industries, Inc.
1924 Broadway Oakland, California

FIRST CLASS SUPERINTENDENT

WANTED

For large concrete sewers, flood control and bridge contracts for work in Philadelphia and New Jersey. State salary, experience and availability.

P-8284, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

CONSTRUCTION SUPERINTENDENT

Well known building concern, New York location, seeks services of experienced construction superintendent in New York and New Jersey Area. Opportunity for advancement to General Superintendent. Reply in confidence giving full details of background, earning capacity of last five years. Enclose snapshot.

P-8322, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

CONSTRUCTION ENGINEER SUPERINTENDENT

For General Contracting firm specializing in highway and bridge work, also reinforced concrete. Must be able to lay out and supervise projects. Reply giving education, experience, date of availability and salary desired.

P. O. BOX 545 MONTVALE, N. J.

Graduate ENGINEERS

GOOD OPPORTUNITIES

for

MAINTENANCE ENGINEERS: Five to ten years' in planning maintenance work, establishing manpower and material requirements, scheduling and controlling work. Must be thoroughly familiar with Machine and Hand Tools used in Plant Maintenance Work. Must have supervised persons doing maintenance work. Must be graduate. For consultation work.

HEATING AND VENTILATION ENGINEERS: Eight to ten years' progressively difficult experience in field and office problems in heating, ventilating and air-conditioning design. Also, experience in making economical evaluation of alternate methods. Must be graduate.

PROCESS ENGINEERS: Must have at least eight years' industrial plant design and experience with at least three years in responsible charge of design work. Plant experience desirable. Must have experience in chemical plant design calculations, equipment design and plant arrangement, with knowledge of structural, power, instrumentation design, etc. Must be graduate.

Give experience, education, age, references, personal history, salary received and salary expected. Please be complete and specific.

All inquiries will be considered promptly and kept confidential.

E. I. du Pont de Nemours & Co.
(Inc.)
Engineering Department Personnel
WILMINGTON 98, DELAWARE

The Government of Punjab (India)

desires to engage on contract for about five years the services of a

Construction Superintendent

to take charge of the construction of a 680 foot high straight gravity dam and large size tunnels together with power houses. It is also interested in the services of a construction Superintendent-in-charge for tunnel work. Applicants must have served for long periods in responsible capacities on the construction of dams and have been in overall charge of the construction of at least one high concrete dam. The tunnel man must have similar experience with respect to tunnels. Apply by mail in duplicate, to the Director, India Supply Mission, 635 F Street, N. W., Washington 4, D. C., giving full details of qualifications and experience stating minimum terms of salary acceptable. Furnished quarters fitted with electricity and water supply available in the Project Township.

POSITIONS VACANT
(Continued from preceding page)

WANTED BRIDGE designers and draftsmen. Give training and experience, salary expected and date available. Bridge Engineer, State Highway & Public Works Commission, Raleigh, N. C.

SALES ENGINEER—Opportunity for man with construction experience to work into position of Sales Engineer. Experience in general construction desired. Advise age, experience, references, and availability in first letter. Address: R. P. Wilkinson, Economy Forms Corporation, Box 128, Highland Park Station, Des Moines 13, Iowa.

ENGINEERS WANTED for industrial fire prevention field work by national insurance organization with offices in most major cities. These are permanent jobs with a real future, but candidates should appreciate that extensive away from home travel is involved. Age 26-40 preferred. P-8206, Engineering News-Record.

GENERAL CONTRACTOR—Operating in New England and Middle Atlantic states requires a No. 1, thoroughly experienced Project Manager or General Superintendent. Must be able to produce excellent references as to experience and character and his record in the general construction field. Excellent opportunity for experienced man who can meet all requirements. State age, experience, salary required, etc. Reply to P-8304, Engineering News-Record.

GENERAL CONTRACTOR — Experienced Estimator wanted for general construction office located in the East. Splendid position for right man. State age, experience, salary required. P-8305, Engineering News-Record.

DESIGN ENGINEER to take responsible charge of design of sewers for a Sewerage Collection District. P-8346, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

FIELD SUPERINTENDENT: Twenty-five years experience, excavating, earth filled dams, levees, coal stripping operations. Familiar with all types heavy equipment, maintenance and operations. Agree coal stripping. PW-8283, Engineering News-Record.

GENERAL SUPERINTENDENT or Superintendent, age 46, married, West Pointer, 25 years experience in complete charge all type heavy construction. Supervised successfully four earth fill dams, two concrete dams, bridges, large sewers, tunnels, foundations, water works, flood control, two foreign projects. Superb record and reference. PW-8325, Engineering News-Record.

SALES Estimator, engineer 15 yrs. experience building, heavy const. & paving desires salaried sales position. PW-8180, Engineering News-Record.

EXECUTIVE ENGINEER—to manage; estimating, negotiating, bidding, subcontracting, scheduling, purchase and rental of equipment and materials. Experienced both building and heavy construction. PW-8181, Engineering News-Record.

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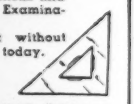

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20"	5	1/8"	1/32"	28 Oz.
24"	4	1/8"	1/32"	28 Oz.
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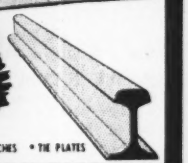

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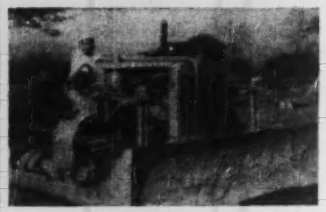

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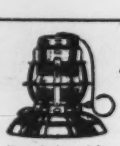

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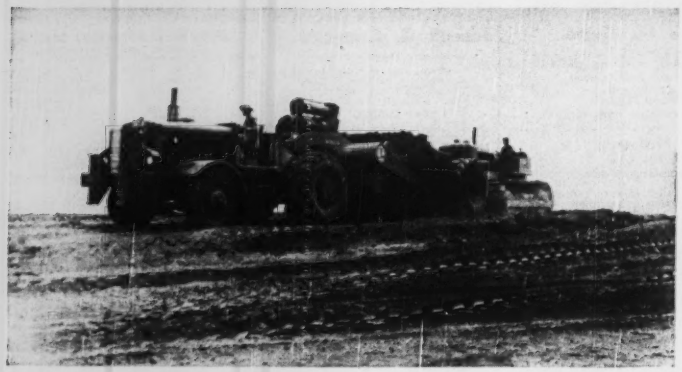
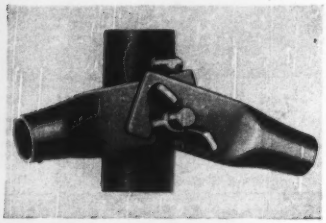


Close-coupled scraper has 15.5-yd capacity

EUCLID SCRAPER features simple design and rugged construction. The close-coupled scraper and tractor provides ample operating clearances and excellent load transfer to the drive tires for good traction. High scraper lift facilitates dumping big loads on soft fills. Rear bumper design automatically aligns pusher tractor. Struck capacity is 15.5 yd; heaped, 20 yd. The 10-speed transmission provides a top speed, with full payload, of 28.2 mph. The completely open top bowl permits top loading. Tractor is powered by a Cummins diesel rated at 275 brake horsepower at 2,100 rpm. Dimensions: Wheelbase, front to scraper axle, 33 ft 3 in.; complete over-all length of tractor and scraper, 48 ft 4 in.; scraper width, 11 ft 6 in.; over-all height with blade on ground, 10 ft 2 in.; width of cut 10 ft 0 in.; maximum depth of cut, 1 ft 6 in.; maximum depth of spread, 2 ft 9 in.; turning circle diameter, front wheel track, 38 ft 0 in.; net weight, 48,800 lb.—THE EUCLID ROAD MACHINERY CO., CLEVELAND 17, OHIO.

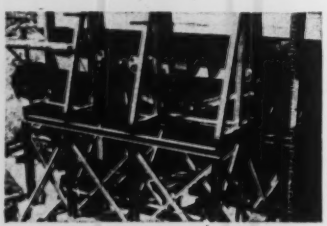


Scaffolding brace lock

Erection and dismantling of tubular-steel scaffolding is speeded with a specially designed brace lock. With this lock, it is never necessary to completely remove wing nuts, and no tools are required. Cross braces attach to end frames by placing slotted ends onto studs, and are held securely in place by a separate lug welded into place just above the threaded stud. A few turns of wing nut accomplishes solid attachment or easy removal.—BIL-JAX, INC., ARCHBOLD, OHIO.

Silicone-insulated welder

Portable ac welder is equipped with an automatic Hot-Start control. This control permits instant arc striking without manual adjustment. Correct amount of boost is always furnished for any specific current setting. The GE welder is 17 in. in dia and 35 in. tall. It weighs 325 lb, and has a current range from 40 to 375 amps. The 6WK30J accommodates electrodes from $\frac{5}{32}$ to $\frac{1}{4}$-in. dia.—GENERAL ELECTRIC CO., APPARATUS DIV., SCHENECTADY 5, N. Y.

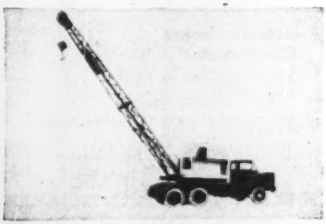


Manganese apron feeder

Heavy-service feeder has an apron width of 4 ft. It can be supplied in various lengths. Pans, rollers, sprockets, and bushings are cast austenitic manganese steel. All shafts turn on over-size anti-friction bearings and the cast manganese pans hinge together in an endless apron. They are self-cleaning and firmly supported by ribbed members for the heaviest impact service. Special high-capacity roller bearings are used on the end shafts. Feeder can be operated with direct-motor drive or from auxiliary equipment with roller chain or belts. —LIPPMANN ENGINEERING WORKS, 4603 W. MITCHELL ST., MILWAUKEE 14, WIS.

Concrete-cutting saw

Four-wheel Model CHD cart converts Clipper masonry saws into a portable saw for cutting concrete floors, walks, and streets. For sawing large sections of stone, Transite, or terracotta, the precision wheel guides carry the saw on sectional steel tracks, available in level or elevated types. Depth of cut can be varied from 1 to 6½ in.—CLIPPER MFG. CO., DEPT. ENR, 2800 WARWICK, KANSAS CITY 8, MO.



Truck-mounted excavator

Model 40 crane-excavator is rated at 12½ tons. It converts to all crane and shovel attachments. Swing speed is 6.4 rpm. Equalizing beam-type suspension and a locking third differential make possible heavy, off-the-road work. An auxiliary transmission provides ten forward and two reverse speeds. The Model 40 lifts, booms, and swings either simultaneously or independently. Standard power unit is a 6-cyl gasoline engine that develops 105 hp at 3,200 rpm. Other gasoline or diesel units are available. Other features include: Cab design permits inside access to all deck machinery; unit replacement of all subassemblies; built-

(Continued on page 78)

FOSTER'S PILING RENTAL SERVICE

Starts Job Months In Advance Of *Contractor's Plans

*A joint venture of the Western Foundation Corporation and Spencer, White & Prentis, Inc. and executed under the general direction of the Stone & Webster Engineering Corporation.

"This is the first time a circular steel sheet piling cofferdam, supported by a reinforced concrete wale, has been used in this country . . . and FOSTER PILING RENTAL SERVICE enabled this job to begin months in advance.

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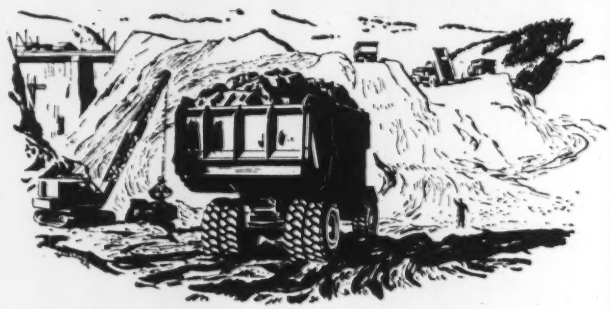

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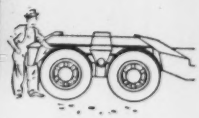
THE *Distinctively* DIFFERENT
ROGERS POWER LIFT
Demountable Gooseneck Trailer
PATENTS PENDING



1 Carries heavier loads on larger tires.
2 Detaches quickly for fast, easy front loading.
3 Stoops to clear low overhead obstructions.
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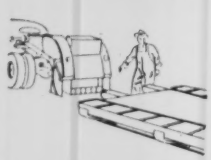
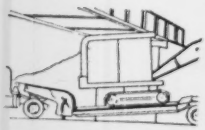
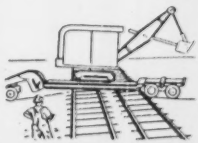

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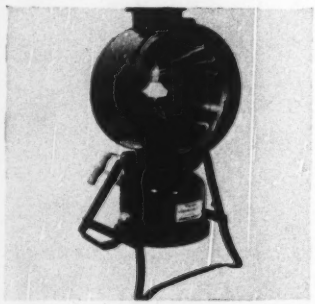
in counterweight to shorten rear-end clearance of cab; 16-in.-dia drums for increased life of the wire rope; and anti-friction bearings throughout. Standard power unit for the upper works is a 62-hp 6-cyl gasoline engine—with optional gasoline or diesel engines available.—WAYNE CRANE DIV., AMERICAN STEEL DREDGE CO., INC., FORT WAYNE, IND.



Kerosene-burning floodlight

Tilley floodlight projector is available on a short stand (as illustrated) or on a tripod. It uses kerosene as fuel, hence is self-contained and completely portable. The manufacturer claims the lamp provides 5,000 reflected candlepower of white light, and will burn for 40 hr on 6 pt of kerosene. Weight, when mounted on the short stand, is 27 lb; height, 26 in.—U. S. A. distributor: W. W. LEE & SON, 20 E. JACKSON BLVD., CHICAGO 4, ILL.

Liquid wetting agent

Denser, stronger, and more uniform concrete blocks and bricks are said to result from the addition to the mix of small amounts of a surface active agent. This liquid wetting agent (Santomerse S) permits the use of less water by increasing its efficiency, producing a dry concrete of greater strength. It also improves plasticity. About 8 oz of the chemical are added to a 5-bag cement mixture. Santomerse S is available in 250 and 450-lb containers.—MONSANTO CHEMICAL CO., ST. LOUIS 4, MO.

Weldable heat-treated steel

Carilloy T1 steel combines extremely high strength with excellent ductility and toughness, even at sub-zero temperatures. With almost double the strength of high-strength low-alloy steels and almost triple that of ordinary welding-grade structural steels, it promises to effect considerable savings in applications calling for heavy steel members of ¼-in. thickness and up. Carilloy T1 is furnished

(*Continued on page 80*)

12 high-speed Tournapulls *change* WASTE LANDS *to* RICE FIELDS *at Hazaribagh*

Mechanized earthmoving is speeding reclamation of this 200,000-acre area which will provide new rice fields for farmers flooded out of their present lands by the new Telaiya and Konar Dams.

In the Province of Bihar, India, 200,000 acres (80,937 hectares) of undeveloped land at Hazaribagh are reclaimed by modern earthmoving methods for future farming. Eroded gullies, 2 to 8 feet deep (0.6 to 2.4 m.) are being filled in, terraces built, and ground leveled for rice fields, which will be covered by 6 to 12 inches (15 to 30 cm.) of water.

To get the land into production in the shortest possible time, the Damodar Valley Corporation, of Calcutta, is handling most of the earthmoving with a fleet of 12 LeTourneau rubber-tired D Tournapulls. These 122 h.p. Tournapulls, with their 7-yard (5.3 m^3) capacity Carryall Scrapers load themselves in the dry, sunbaked clay. Material is so hard, it has to be broken up with a Rooter. Loading, hauling and spreading in continuous cycles, the one-man-operated Tournapulls set a fast earthmoving pace in spite of desert temperatures which frequently soar to 130° (49.5° C). Local inexperienced operators, trained on the job, found Tournapull's simple, finger-tip, electric controls easy to handle—learned to operate the high-speed units efficiently within a few hours' time.

To reach the isolated location, Damodar Valley Corporation's 12 Tournapulls drove 30 miles (48.2 km.) across desert from the nearest rail line at Kadarma, a short, quick trip with the "D's" 28 m.p.h. (45 k.p.h.) travel speeds. Investigate what these modern, rubber-tired D Tournapulls can accomplish in speeding completion and simplifying your dirtmoving. Their rubber-tired mobility, high speed and availability for independent, one-man operation offer important advantages for your equipment modernization. Call your LeTourneau Distributor.

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To increase the headwater at hydro plant, a Sauerman Slackline Cableway removes 80,000 cu. yd. of boulders and mud from 1,500-ft. section of spillway, piling spoil along bank.

SLASH DIRT HANDLING COSTS with SAUERMAN CABLEWAYS

Send for booklet showing how leading contractors reduce their costs with Sauerman machines.

Whatever your problem of material handling, your first consideration is to keep the cost low and use as little labor as possible. When you have a contract that requires digging deep and moving material a distance of several hundred feet or more to an elevated delivery point, there is no machine equal to a Sauerman Slackline Cableway. It digs, hauls, conveys and lifts in a continuous cycle with one operator. There is a size and type of Sauerman Machine to meet your specific requirement. Low initial cost—small power consumption—inexpensive maintenance.

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Photo: Courtesy of Union Pacific Railroad.

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Tunnel Engineers familiar with Commercial Steel Supports specify them over and over because they have learned from experience that erection is faster on all types of tunnel construction with Commercial Supports.

Not only do they eliminate slow cumbersome timbering but assure safety both during and after construction.

Commercial Steel Tunnel Supports are tailored to meet the variable requirements of each job.

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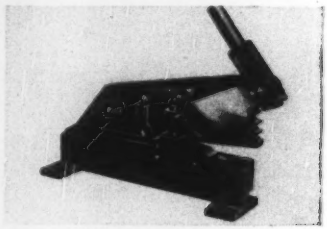
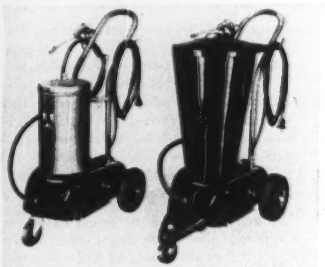
heat treated to a minimum yield strength of 100,000 psi. Welding does not adversely affect the properties of this steel, so that no special preheating or postheating treatments in welding or gas-cutting operations are needed beyond those normally used with standard structural steels. Bending or forming may be accomplished cold if sufficient power is available. Carbon content is restricted to 0.18 maximum.—CARNEGIE-ILLINOIS STEEL CORP., SUBS. UNITED STATES STEEL CORP., PITTSBURGH, PA.



Hand-lever slitting shears

Frame of the Samson shears is offset to enable the machine to cut sheet or plate of any length or width. Available in five models, capacities range from $\frac{1}{8}$-in. to $\frac{5}{8}$ in. mild-steel plate. Shears up to $\frac{5}{16}$-in. capacity have a toggle action; larger models have a gear action. All shears have holdowns adjustable for the thickness of the material being cut. The machines will cut flats and rounds.—JULIUS BLUM & CO., INC., 532 W. 22ND ST., NEW YORK 11, N. Y.



Electric grease guns

High-pressure electric powerguns are available in capacities of 25 or 40 lb. The 25-lb gun (Model 7170-R) will deliver 14 oz of light or medium lubricant per minute at 70-deg F. It will handle all greases that seek their own level. It develops 5,000-lb pressure. Its motor automatically shuts off when this pressure is built up. The 40-lb gun (Model 7175-R) handles all types of grease—fibrous, heavy, or light. It delivers 5½ oz. per min. It also develops 5,000-lb pressure.—ALEMITE DIV., STEWART-WARNER CORP., 1826 DIVERSEY PARKWAY, CHICAGO 14, ILL.

Manufacturers' Publications

Aluminum—Illustrated booklet provides interesting information on aluminum. The booklet describes the material, explains how it is produced, lists important developments in finding a low-cost process for producing it, and contains other interesting facts. The booklet describes the properties of aluminum, and lists several applications taking advantage of these properties. It also contains information on the Aluminum Association.—THE ALUMINUM ASSN., 420 LEXINGTON AVE., NEW YORK 17, N. Y.

Filters for water and sewage—Aloxite aluminum-oxide porous media and its applications in water and sewage treatment are discussed in this 56-p engineering bulletin. The bulletin is a complete reference covering all filtration and diffusion applications for ceramically bonded media. Numerous charts, tables, and illustrations supplement the technical information that deals with uses, design, installation, operation, and specifications.—THE CARBORUNDUM CO., REFRACTORIES DIV., PERTH AMBOY, N. J.

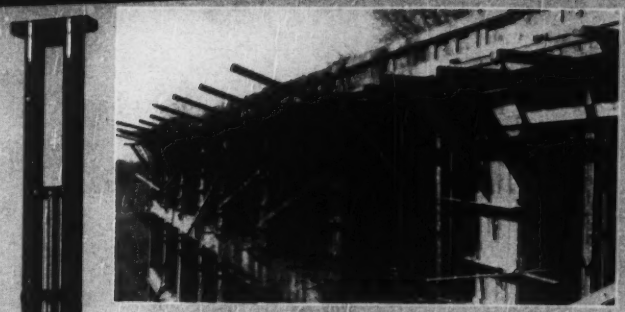
Mixflo pumps—Bulletin W-317-B16 describes Mixflo pumps with two-vane closed impellers. These pumps are used for irrigation, drainage, sewage disposal, condenser circulating, and low-speed water supply. The 16-p catalog contains line drawings, general data, performance curves, fittings of standard pumps, shafting charts, and sizes of motor stands required by various motor sizes and dimensions.—WORTHINGTON PUMP & MACHINERY CORP., HARRISON, N. J.

Power and control cables—Sixty-page catalog describes power and control cable construction. A special data section covers dimensions, electrical and physical characteristics for low and high-voltage power cables, service cables, airport lighting cables, and street lighting cables. The catalog also contains a complete discussion of Rome cable insulations and sheaths, both of the thermoplastic and thermosetting types.—ROME CABLE CORP., ROME, N. Y.

Controlled vacuum flotation—Dorrco Vacuator is a compact high-capacity unit utilizing the principle of controlled vacuum flotation to remove solids, grit, and scum from sewage and industrial wastes. Bulletin 6301 describes the Vacuator in detail, in-

(*Continued on next page*)

COMPLETE SAFETY . . . WITH ROOSHORS



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Rooshors are absolutely safe . . . at all times the *pressure is three times as great as is necessary to prevent slipping.*

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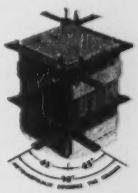
Columns are *quickly* formed with the Roos Clamp because it is impossible to put them on wrong and there are no loose parts to become lost . . . a hammer is the only tool needed to tighten.



Rooshors and Roos Column Clamps are available for rental from warehouse stocks in principal cities from coast to coast—for prompt service.

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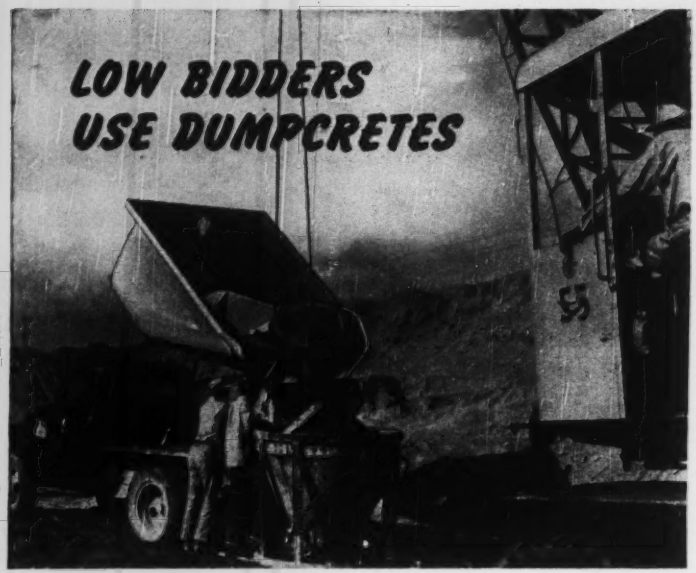

The above photo shows one reason why Dumpcretes haul more concrete in a day—and haul it cheaper. Here the *high-discharge* Dumpcrete is dumping into a bucket without a special ramp. It will do just as well into buggies or hoppers.

The Dumpcrete's long 13-foot chute saves time too—it will place concrete anywhere you want it in a big 180 degree arc.

The Dumpcrete charges fast at the mixing plant because of its big open top. And on the way to the pour, its light weight makes it fast and easy to handle over rough ground.

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The lower cost Dumpcrete is lightweight, watertight, with 13-foot chute, controlled higher discharge and lower center of gravity. Hauls sand, gravel, and coal too. Available in 2, 3, and 4 yard sizes.

Please send information on low-cost Dumpcrete.

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Firm _____

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DUMPCRETE DIVISION
Maxon Construction Company, Inc.
587 Talbott Building, Dayton 2, Ohio

(*Continued from preceding page*)
cluding photographs, drawings, capacities, and design data. Three pages are devoted to operating results in practice covering descriptions of installations, flowsheets, and Vacuator plant removals.—THE DORR CO., INC., BARRY PLACE, STAMFORD, CONN.

Snow plows—Complete line of snow plows is illustrated and described in this broadside. Types listed are: One-way shovel-blade plows, high-speed one-way plows, adjustable tapered blade plows, reversible blade plows, medium-weight V-plows, V-plows with front-mounted wings, V-plows, and one-way sidewalk plows. The broadside contains dimensions and mounting instructions for each type listed.—GOOD ROADS MACHINERY CORP., MINERVA, OHIO.

Lightweight insulating concrete—Technical data sheet contains a general introduction to Permalite lightweight insulating concrete as well as a review of its uses. Typical applications are illustrated; complete technical data shows a wide number of mix ratios to be used in designing Permalite concrete for specific applications; and other features are described. Also included is mix design data covering typical properties showing 28-day compressive strength; oven-dry density and thermal conductivity; mix proportions by volume; and materials required per yd of concrete.—GREAT LAKES CARBON CORP., BUILDING PRODUCTS DIV., 18 E. 48TH ST., NEW YORK 17, N. Y.

Silver alloy brazing—Where and how to use Easy-Flo and Sil-Fos low-temperature silver-alloy brazing methods are described in Bulletin 20. This bulletin shows several interesting applications, and describes in detail fast brazing techniques.—HANDY & HARMAN, 82 FULTON ST., NEW YORK 7, N. Y.

Close-coupled pump and motor—Design and construction features of the Electrifugal close-coupled pump and motor are described in Bulletin 52B6140B. The bulletin describes the various features claimed for the Electrifugal, lists the styles in which it is available, and contains capacity ratings for pumps ranging from 10 to 500 gpm at heads to 220 ft.—ALLIS-CHALMERS MFG. CO., 1018 S. 70TH ST., MILWAUKEE, WIS.

Sewer and pipe cleaning—Equipment for sewer and pipe cleaning is described in detail in this 24-p Stewart catalog. Equipment listed includes sewer and conduit rod, heavy-duty sewer rod, hand tools for use with rods, sectional rods, complete sewer-cleaning machines, engine-driven pipe-cleaning machines, windlasses, sewer brace and manhole guide, guard-cage collapsible buckets, root-cutting buckets, porcupine scraper, line cleaners, and accessories and fittings. Each item is illustrated, and specifications and dimensions are listed for each style and size in which the equipment is available.—W. H. STEWART, INC., P. O. BOX 767, SYRACUSE, N. Y.

Chemical feeders—Universal feeders designed to handle practically all types of dry chemical or materials used in water treatment are illustrated and described in 12-p Bulletin 20-G14. Three sizes listed cover a feeding range from 1 to 5,000 lb per hr. Features discussed include high accuracy, extremely wide range, and dust-proof operation. Diagrams show automatic proportional control; typical arrangements and installations; and photographs of equipment in use. Special applications and data cover computations of dissolving chamber capacities for feeders. Typical speci-

fications, feeder quotation request sheet, and diagrams and tables of dimensions complete the bulletin.—Omega Machine Co., Providence 1, R. I.

Contractors' lube systems—Heavy-duty lubrication system for construction equipment is described in Catalog 1-2493. Lincoln Lubrovans can be used for portable or stationary service. The bulletin describes several standard Lubrovans, lists the equipment on each, describes the features of component parts, and describes various Lincoln accessories and fittings.—Lincoln Engineering Co., 5702-20 Natural Bridge Ave., St. Louis 20, Mo.

Conveyor belting—Several styles and types of conveyor belts are described in a 4-p folder. These include regular type, step-ply, stacker types, breaker strip, and cord-type construction; hot materials, portable conveyor, package conveyor, and safety-grip rough-top belting; and Super Ironside, Ironside Neoprene, Quaker, and Hercules styles. The folder describes each of these in detail, and lists the particular features that make each type practical for various types of conveyor service. Also listed is a series of hints on how to get the most out of conveyor belting.—Quaker Rubber, Div., H. K. Porter Co., Inc., 4941 Comly, Philadelphia 24, Pa.

Trussed rafters—Origin and development of wood-frame Teco trussed rafters for roof construction are fully set forth in a new booklet. Originally designed for residential buildings, the clear-span trussed rafters are equally adaptable to small industrial and commercial buildings, churches, schools, and other indoor assembly places. This whole concept is set forth in text, pictures, and diagrams together with detailed descriptions of latest approved methods of applying the Teco wedge-fitted split-ring connectors and Trip-L-Grip framing anchors. —Timber Engineering Co., 1319 Eighteenth St., N. W., Washington 6, D. C.

Aluminum structural design—Basic information on design of load-carrying structures in aluminum is presented in complete and up-to-date form in the 1950 edition of the handbook, "Aluminum Structural Design." This book enables any engineer familiar with mechanics of materials to design an original structure of aluminum; or to convert an existing structural design from some other material to aluminum. The handbook contains 120 pp, 144 illustrations, 39 tables, 3 indexes, including an itemized cross index. It is wire bound and will lie flat when open. Write on company letterhead.—Reynolds Metals Co., 2500 S. 3rd St., Louisville 1, Ky.

Pneumatic sewage ejector—Use of pneumatic or compressed air ejector for cleaning screens and pumps in sewage systems is described in Catalog S-50. This bulletin describes the Blackburn-Smith system, lists its advantages, and contains complete information on its operation. Engineering and installation data are presented by performance charts, piping diagrams, and layout sketches. Also included is a form of specification for sewage ejectors. — The Blackburn-Smith Mfg. Co., Inc., Hoboken, N. J.

Water clarification—Bulletin 5001 describes the Cochrane Liquon sludge contact reactor. This water-conditioning apparatus employs the chemical principle that previously formed precipitates added in the form of sludge or slurry accelerates reactions. The bulletin details this principle as applied to the sludge-contact reactor, describes operation of the Cochrane-Liquon unit, illustrates and describes types of equipment available, gives a list of applications (with a separate page on waste recovering), and describes auxiliary equipment. Photographs of typical installations are also shown.—Cochrane Corp., 17th St. & Allegheny Ave., Philadelphia 32, Pa.

Three-axle tandem rollers—Advantages of the KX-25 3-axle tandem roller in providing high compaction and smooth riding surfaces are described in a 4-p bulletin. Featured in the bulletin is a description of how weight is distributed between the axles when a surface irregularity causes one axle to be lifted off the road surface. Detailed descriptions are also included of the brake, transmission and final drive, power unit, synchronized hydraulic steering, and the rolls.—The Buffalo-Springfield Roller Co., Springfield, Ohio.

Concrete-wall construction – Forming system for concrete walls is described and illustrated in 4-p bulletin. Erecting and stripping advantages of the system are explained in a short factual manner. Described in detail are the panels, 2-way form tie, connecting bolt, tightening wedge, wale tie and wale plate, corners, and fillers. Assembly details and standard sizes are explained. Detailed information is provided on wood, plywood, plywood with magnesium frames, and all-magnesium forms.—Symons Clamp & Mfg. Co., 4265 Diversey Ave., Chicago 39, Ill.

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The Five-Year Write-off and You

How quick depreciation can backfire as well as help

Business men are storming the National Resources Security Board for certificates of necessity authorizing them to write off defense facilities under the five-year amortization arrangement allowed by the emergency tax bill passed last September.

In spite of warnings from Treasury experts that corporate income and excess profits taxes may be higher during the period 1955 to 1960 than at present, the write-off bird is in the hand.

But contractors, eyeing fast write-off of heavy construction equipment, should realize that "quickie" amortization is not necessarily a one-way ticket to extra dollars. Money can also be lost that way.

Depreciation dollars written off now cannot be deducted later—whether taxes are high or low. On the depreciation see-saw, today's artificially high write-off will have a tendency to overstate income from new facilities once the five-year period is over.

• **Profits will out**—Quick amortization can only submerge profits while it lives. Once the period is over, profits have a way of coming through bigger than ever, overstated dollar for dollar for each understatement achieved through the quick depreciation device.

The actual amount of money that contractors, or any industrialists using the device, may save or lose will be the difference between taxes paid on overstated profits in the future as against taxes not paid on overstated depreciation now.

Remembering that in World War III excess profits taxes might go as high as 95% as against the 65% to 75% now contemplated, it is actually possible to lose as much as 30 cents on every dollar of excess profits pulled away now as depreciation cost under speedy amortization.

On the other hand, the gain now possible may be as much as 35 cents on every dollar tucked away as quick depreciation cost over the long term. This is the difference between an assumed 1955 to 1960 corporate income tax of around 40% and the maximum excess profits tax now under discussion of 75%.

As a tax-dodging speculation, rapid amortization cuts two ways.

• **Divide the boiler in three**—Contractors who took advantage of a similar tax provision during World War II will recall (with Bureau of Internal Revenue men) that heavy equipment was not usually amortized over five years at 100% of its value.

If an equipment item has a life of from ten to 20 years, and can be used on non-defense and civilian work after use on a defense project, some estimate of the lost value of the equipment through use on the defense project will probably be made the basis of a five-year write-off. The remaining value of the equipment will have to be handled over the standard period of time for normal tax purposes.

Few firms will be allowed 100% amortization of defense facilities. Only those actually making munitions are expected to have this.

Bureau of Internal Revenue points out that under a similar provision of the last war, construction industry write-offs on heavy equipment ranged between 30% to 60% of value where authorized.

• **The normal stays**—Put another way, from 40% to 70% of the equipment's value had to be carried over the normal depreciation period.

Definite rulings as to what types of jobs qualify for certification have not been made by NSRB. Individual cases will be decided on their peculiar merits, a system of rulings established by inclusion and exclusion over time.

As a result of this policy, virtually any taxpaying enterprise qualifies as a candidate for a certificate of necessity, and the NSRB office in Washington continues to be swamped for its 209-inch application form.

• **To qualify**—In applying, it should be borne in mind that an "emergency facility" as defined by the National Security Resources Board can include any land or plant or equipment acquisition of which was completed after December 31 1949, and with respect to which a Necessity Certificate has been made.

Although defense needs of the nation may justify a certificate of necessity, and allow quick amortization of equipment, the only valid reason for taking advantage of the speedy write-off provision would be the cash needs which always accompany any expansion of operation.

Those taking on new equipment for temporary defense purposes may prefer to do so "out of pocket" and not assume long term indebtedness.

Temporary equipment purchases become less onorous if quick write-offs recoup depleted cash reserves.

Contractors taking on permanent equipment for defense purposes may also give valid consideration to swift depreciation.

• **Two problems**—The financial dilemmas of expansion always have two horns. One is the long term financing of new property, building and equipment. The other is the short term financing of increased payrolls and in the case of manufacturers, inventories and receivables.

Sudden expansion never raised one problem without the other. Anyone with a payroll to meet knows that even a five-year write off may not begin to relieve the initial drain on cash that new expansion brings.

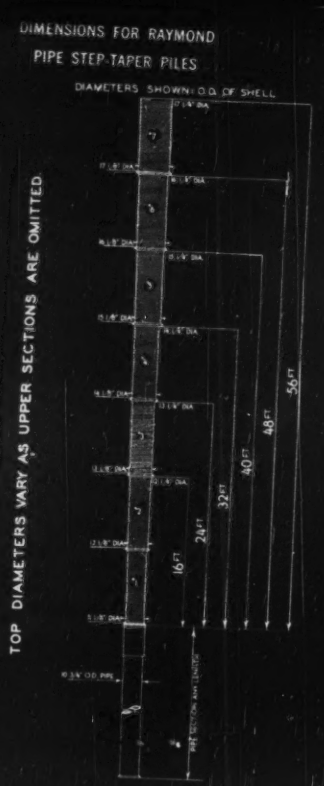
Many will be obliged to take on a debt structure to meet the nation's war needs or to seek new capital in spite of rapid amortization provisions.

These firms will find that a period of excess profits and high corporate income taxes is generally not auspicious for a new stock issue, especially when costs are likely to be overstated.

• **A partial help**—When expansion does become the order of the day, the swift write-off of new equipment, even in part, will be a help, but it may not be enough of a help to meet the real needs of some firms that are short on cash.

On the other hand, when adjustment to peace comes, if it ever does come within the next decade, swift amortization will have given a good many industries a stronger cash position with which to adjust to the new needs of the nation.

Whether business men engaged in defense work face war or peace, it is important to the nation that they do so with funds adequate to the cash demands of each.



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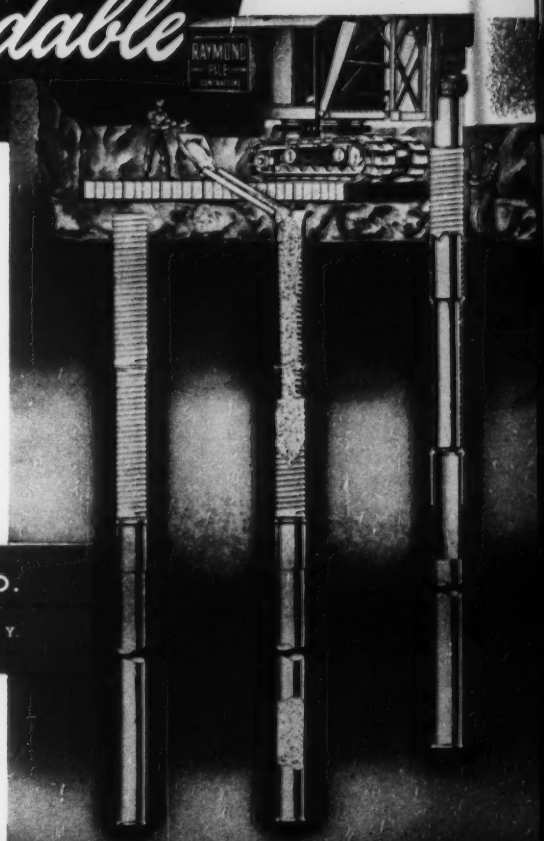
At the right, the pipe step-taper pile is being driven with the rigid steel mandrel. In the center the shell and pipe are being filled with concrete after having been driven to satisfactory resistance and inspected. At the left is a completed pipe step-taper pile.



Raymond Pipe Step-Taper Piles are composed of an upper section of Step-Taper Shell Pile and a lower section of closed-end steel pipe pile. These piles are generally used to penetrate thick beds of soft soil to reach hard bottom at depths as great as 150 feet or more. The pipe step-taper pile is a most dependable pile available for reaching hard ground at great depths.

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